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ABSTRACT

A major challenge in higher education is to build evaluation models that first of all spell out various effectiveness measures and then related cost data. The Program Effectiveness and Related Costs (PERC) framework addresses this problem. The five components of PERC are outcomes, costs, students, learning programs, and faculty. An overview and discussion of the PERC model points out certain minimum tasks that must be completed to build relationships between program effectiveness and related costs. These tasks are: (1) trace what happens to students while attending the institution and how much money is spent from all sources in various programs to achieve results; (2) obtain data on specific intellectual and personal attributes of students on entry and completion of their programs; (3) collect data about student change and development from at least two sources; (4) use two types of measurements, quantitative and qualitative, to study and evaluate student change and development; (5) interpret and evaluate data from two points of view. The result will be a major rethinking of institutional priorities and adoption of new ways of allocating scarce resources. (Author/KE)

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PROGRAM EFFECTIVENESS AND RELATED COSTS (PERC): AN OVERVIEW

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Program Effectiveness and Related Costs (PERC): An Overview

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There are many studies of student learning, college impact, and effectiveness as well as studies of college costs (see extensive list of references at end of chapter). However, several problems exist with the way in which these studies have been either designed or used. The design difficulties occur largely on the effectiveness side.

Most research on effectiveness does not explore significant learning outcomes. Those learning outcomes studied are examined in highly standardized and narrow ways generally using commercially available tests, questionnaires, and attitudinal surveys. Such strategies do not deal adequately with programs like Empire State College (ESC) which emphasizes student educational goals and objectives. Furthermore, they do not fully assess "value added" by an institution or program (Micek and Wallhaus, 1973; Hartnett, 1974; Astin, 1975). A second problem with effectiveness research is that few studies of student outcomes successfully link change or development to the program or institutional learning experiences. Two lengthy longitudinal studies, Newcomb's at Bennington (1943) and Perry's at Harvard (1968), are exceptions for these research strategies provide through case study analysis, a kind of linkage between program and student change not normally seen. However, the design problems with most effectiveness research are not as serious as the way in which cost studies are often used.

Much data is available describing costs: per credit hour, per FTE student, per degree produced, etc. But little is said in these studies about what students

actually learn, the raison d'etre of education. With an abundance of cost data readily available, there is a noticeable tendency to use the lowest common denominator method of decision-making in higher education: to choose strictly on the basis of what is less expensive. The recent demise of the innovative James E. Allen,Jr. Collegiate Center at the State University of New York, Albany is a salient example of the lowest common denominator approach. However, such expediency-based solutions to complex problems will not suffice.

There is much concern among the general public, state officials, parents of students, and students themselves that something is wrong with higher education. They ask why college costs so much and what are the benefits of study. Some even suggest that colleges seem to know the cost of everything and the value of nothing, for few, if any, institutions can convincingly demonstrate that their educational programs have important impacts on students. In fact, most institutions cannot provide accurate and meaningful information that goes beyond such simplistic measures as grade point averages, Graduate Record Examination scores, and cost per credit hour. Higher education's public demands better. A major challenge, then, is to build evaluation models that, first of all, spell out various effectiveness measures and then relate cost data.

Undergraduate teaching institutions have a particularly great need to demonstrate results. Institutions classified in this group are the community colleges, independent junior colleges, small liberal arts colleges, state colleges, and non-traditional colleges. With the exception of the community colleges, all have faced severe fiscal difficulty in the late 60's and early 70's and sometimes reacted with a lowest common denominator approach. The undergraduate teaching institutions must

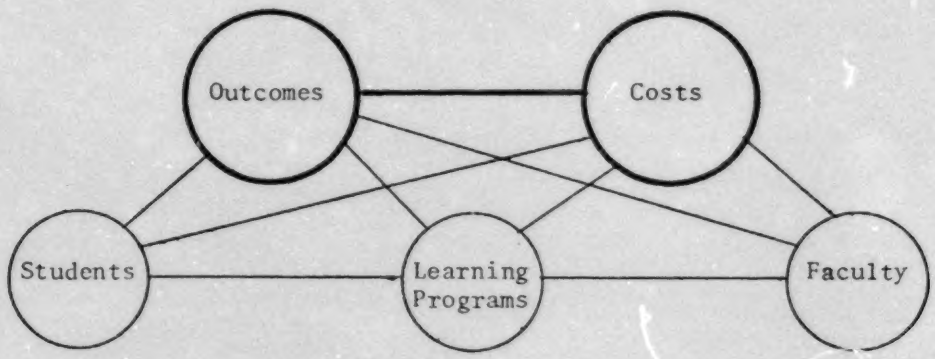
learn to link educational assessments with meaningful cost data so they can plan in a way that will improve their educational programs, attract rather than lose students, and stop, slow down, or compensate for waning public support.

This chapter describes the Program Effectiveness and Related Costs (PERC) framework being developed and implemented by the Office of Research and Evaluation at Empire State College of the State University of New York.[1] PERC takes seriously the problem of marrying effectiveness and cost efforts into a coherent, powerful, and integrated package.

A Model for Integration: Program Effectiveness and Related Costs (PERC)

What the weaknesses in available studies lead us to propose is a program effectiveness and related costs strategy which focuses on the master question - What kinds of students working with what kinds of faculty in what kinds of learning programs change in what ways at what cost? The model looks like this:

Figure 1
The Five Elements of PERC



[1]This paper reports on research from a project, "Developing Cost/Effectiveness Models for Postsecondary Education," partially funded by the HEW Fund for the Improvement of Postsecondary Education. Ernest G. Palola is Project Director.

The first component of this model is outcomes. Each college must identify its own set of outcomes appropriate to the kinds of students it attracts, and the kind of educational program it offers. Colleges must specify what their students are trying to attain, what the college is trying to achieve, and what kinds of learning programs will produce these desired outcomes.

At ESC, we start by defining outcomes based on student needs and objectives. Each student designs an individualized degree program which provides the basis for measuring outcomes. The PERC model has classified individual student objectives into eight possible outcome categories. These categories are: substantive knowledge, communication skills, cognitive, developmental, personal, occupational, public service, and unanticipated. To illustrate, substantive knowledge is the level of competence achieved within the context of a student's goals; cognitive outcomes include comprehension, analysis, evaluation, synthesis, and application; and, developmental outcomes cover interpersonal competence, awareness, clarifying purposes, self-understanding, and self-consistency. We think this classification of outcomes is comprehensive and includes most key dimensions across different institutional types. However, individual institutions may select their own set of particular outcomes and measure them in ways suitable to their education program.

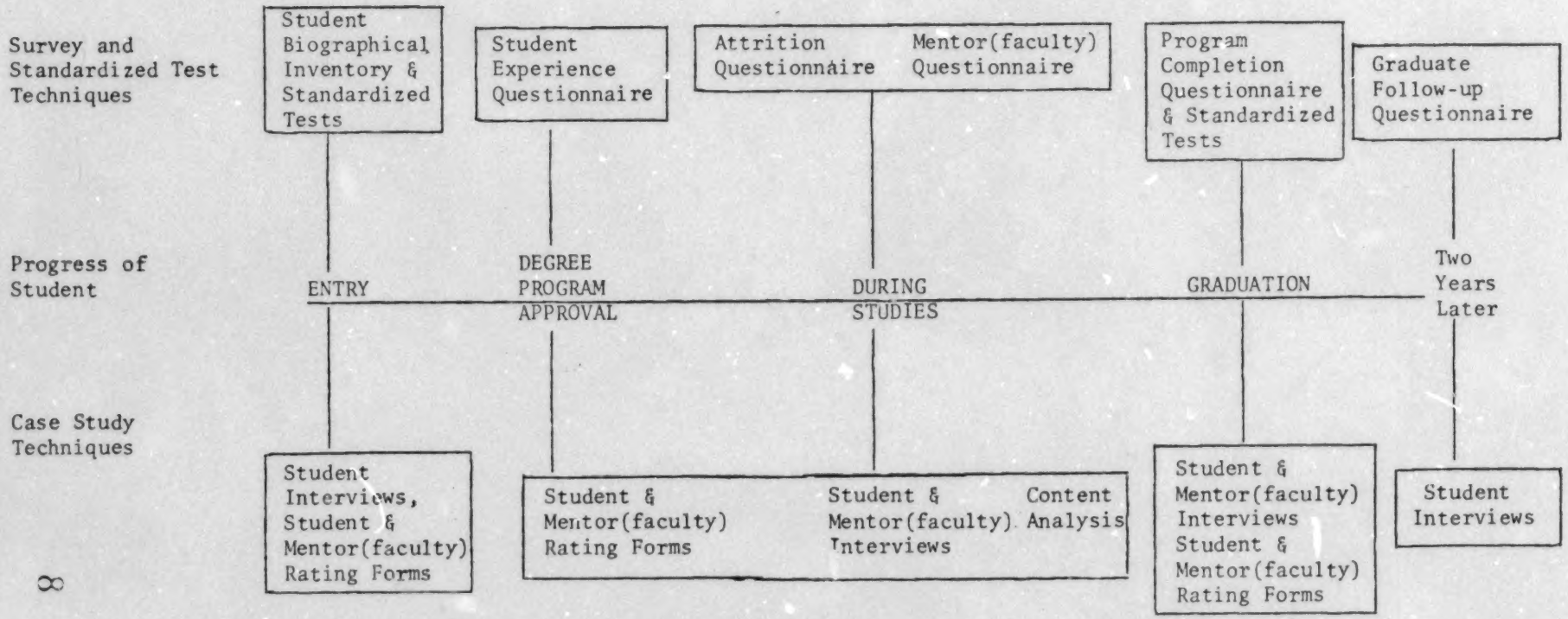
Turning to the cost area, there are two essential features of the PERC cost model. First, it is developed as a supplement to the effectiveness framework: cost data is developed after the educational effectiveness questions are identified. Second, the model is triggered by the individual student's learning experiences rather than by some budgetary formula (e.g., FTE students or credit hours). Group (class, major, etc.) costs are determined by summing the appropriate individual student costs. This provision allows allocation of costs accrued by a specific student

and thus enables monitoring of costs caused by such things as use of different educational modes, area of study, and length of study. Most models work in the opposite direction.

Although ESC's cost model is comparable and compatible with most others (Debus, 1974), it differs significantly from existing models. The model requires assigning a value for all in-kind contributions of services, materials, facilities, and programs. Developmental costs and access costs, such as providing services to special groups not now served, are treated as deferred assets. Portions of faculty salaries devoted to general administration are assigned as overhead, not as direct instructional costs. Finally, average salaries are used across units of the institution.

The first step in the costing process is to take a student's file and to extract several pertinent items of information: learning center/unit (location), contract (course) number, amount of credit, dates, mentor (faculty member), area of study, and type of learning resources used (tutors, classes, independent study courses, field studies). With the location information in hand, the next step is to extract cost center figures. Cost data will be fixed for each location which is based on average faculty salary and fringe benefits assigned to the location, center overhead, general institutional overhead, auxiliary enterprises, debt service, capital outlay, and endowment costs. These costs will be broken down into contract month costs (the basic time unit at ESC). The "fixed" (contract month) charge will be assigned student contracts on the basis of the number of contract months taken. The specific costs (actual and "in kind") of the learning resources used will be added to the fixed charge. Step three is to accumulate these costs for each contract to determine the student's total program costs. In most instances above, "course" can be substituted for "contract" to get a sense of how these types of analyses can be applied elsewhere.

Figure 2
PERC Longitudinal Design



Summary figures for the cost model can be based on a student week as well as other bases. An FTE student week equals one traditional student credit hour. This conversion factor assumes that a full-time student at a traditional college studies 15 weeks carrying 15 hours per week to earn 15 student credit hours. Using it, interinstitutional cost comparisons can be made.

In the PERC model, the outcome/cost relationship is the primary focus of attention. In addition, there are three other components of the model - students, learning programs, and faculty. A classification scheme has been developed for each of these components and is discussed in detail in the Handbook (Palola, et al, 1975). This data is used to help specify and elaborate the primary outcome/cost relationship.

Research Design and Instruments

The longitudinal PERC design (Figure 2) calls for a variety of survey and case study techniques in concert throughout the study. This provides the necessary multiple measures at each stage to create chains of evidence on where a college or program is having effects and where not (Campbell & Fiske, 1959; Sieber, 1973).

Initial measures are taken upon student entrance. At this time, a Student Biographical Inventory (SBI) is administered to a large group. The SBI provides a clear picture of the characteristics of incoming students, their learning styles and goals. In a scheme defining effectiveness as goal attainment, the SBI is vital. The Educational Testing Service (ETS) Undergraduate Program Area Tests, or some comparable tests, are used to provide an objective[1] picture of student intellectual attainment. These instruments are supplemented by qualitative case study techniques: student interviews plus student and faculty rating forms. The interviews allow thorough discussion of complicated responses while the rating forms further delve into where

[1]The authors are well aware of the concerns of many over use of standardized tests to measure academic achievement or level. In fact, we share them. But, in concert with other methods, standardized tests do give a view of student intellectual attainment which can be compared to national norms. Thus, they are useful as one of multiple measures.

entering students are on important cognitive dimensions (ability to analyze, synthesize, and apply learning to other settings) and areas of personal development (purpose, awareness, and self-understanding). The rating forms can be adopted fairly easily to most institutions' goals and objectives for students.

During their studies, it is useful to look again at students to see what changes are occurring and why. Much research on students in college (Newcomb, 1943; Katz, 1968; Feldman & Newcomb, 1969; Hartnett, 1974) indicates that the greatest changes often occur early. The Empire strategy identifies such change as close as possible to where it occurs through administration of a Student Experience Questionnaire (SEQ). This instrument examines whether students have changed their educational objectives, how they are reacting to the educational program, what is the nature of their degree program, and what kinds of learning resources they are finding useful. This questionnaire is again supplemented by student and faculty interviews as well as content analysis of student documents, a technique for objectively analyzing papers, journals, and the like (Berelson, 1954; Holsti, 1968). At Empire, when used over time, this method will help especially in identifying student growth in cognitive skills. Rating forms also will be used again at this stage to identify change. In addition, plans call for administration of an Attrition Questionnaire (AQ) and a Mentor (faculty) Questionnaire (MQ). The former investigates possible positive or negative effects of study for dropouts while the latter recognizes the importance of faculty goal attainment to long-term program effectiveness and explores such things as backgrounds, motivations, views of the program, work load questions, participation in governance career orientation and perceived outcomes for faculty.

At graduation, a Program Completion Questionnaire (PCQ) which mirrors the SBI is administered to see if students think their goals were achieved and why. Another round of standardized tests, the ETS Undergraduate Program Aptitude and Field Tests, or some comparable tests, confirm or deny these perceptions in intellectual areas

while rating forms and interviews with students and faculty again provide substantiating links in the chain of evidence.

Two or so years after graduation, a Graduate Follow-Up Questionnaire (GFQ) examines various academic, vocational, personal, and public services outcomes of the program. It also asks if perceptions of the program have changed and how. A few interviews will also supplement the survey findings at this stage.

While space concerns preclude full description of all instruments, here are illustrative descriptions of two that can be adapted fairly easily to any institution. Both are found in the Appendix. The Student Biographical Inventory (SBI) was designed after examining several other instruments, the best known being the American Council on Education Student Information Form. The SBI establishes baseline data on students in several areas important to the PERC scheme: demographic background, socio-economic background, educational background, personal and financial supports, learning styles plus general and specific vocational and academic goals. The SBI is currently administered to all incoming students and assists the institution in meeting State and Federal reporting requirements as well as providing most of the data needed to select PERC samples.

The faculty and student rating forms provide essentially qualitative data that can also be quantified. Perhaps the most flexible of all PERC instruments, they can be used at several points in a student's program or simply at the end by asking the student or faculty member to indicate where was a given person upon entrance, and where at subsequent points. The rating forms are easily adapted to any setting simply by substituting local goals for Empire's and creating brief hierarchical statements. For example, if a given goal is "to improve students ability to communicate through writing," a ladder of descriptive statements on a faculty rating

form might be: (1) This student frequently has difficulty making his/her ideas clear to a reader, (2) This student sometimes has difficulty making his/her ideas clear to a reader, (3) This student usually communicates his/her ideas clearly to a reader, (4) This student almost always communicates his/her ideas clearly to a reader. Such statements can be created for any given set of institutional or program goals.

In sum, the research design calls for survey instruments reinforced by case study techniques. This strategy provides chains of evidence to link up student learning and change with the educational program and its related costs. Such a strategy overcomes a major defect of previous studies as college specific effects are sorted out from non-college general effects.

Sampling

There is no one right sample design for all research. There are, however, simple and effective designs for a given set of problems such as those created by the PERC framework. The key to identifying an appropriate sampling strategy is to think through the entire planned study from inception to analysis and use. This may save much extraneous effort for the sampling design should reflect the research questions to be answered. For example, if the basic aim is to find out whether a given department is measuring up in relation to the rest of the institution, a stratified sample that draws equal or proportionate numbers of students from several departments may be appropriate. If, however, the aim is to look at the institution as a whole, a simple random sample or systematic random sample (e.g., pick every fifth person on a list) should suffice. Another possibility in this case is to cluster (e.g., study everyone in a given dorm) but this technique generally requires substantial cross-checking to ensure against unintended systematic exclusion of important

groups whose inclusion might alter the findings. Again, pick the method that accomplishes the task of providing representation of a population with the least amount of effort.

The size of the sample also depends upon the questions to be answered and the analysis plan. If one wishes to study the perceived outcomes of married female and male students majoring in elementary education, health sciences, and business to see which program is having the greatest effects on which kinds of students, it is important to know before sampling what are the size requirements of the statistical test of significance chosen. A total sample size of 50 would not be sufficient to deal with such a complex research problem though 100, if stratified to focus on the key variables, would be enough for many statistical tests.

The PERC design is longitudinal (i.e., we follow the same group of students over time) which helps define certain requirements of the sampling strategy. Also, using a variety of instruments necessitates sub-sampling strategies. In general, PERC requires a large enough sample of students and faculty so that: (a) they are representative of important features of the population (e.g., sex ratio, full or part-time status, areas of study); (b) there is adequate allowance for attrition over time; and (c) the requirements of multivariate statistical techniques can be met. Figure 3 describes the PERC sampling strategy that meets these conditions.

The Student Biographical Inventory (SBI) which is administered to all incoming Empire students, provides the 500 person base for sampling. Since we have decided to test some hypotheses regarding student typologies that can be identified in the SBI, the sample will be selected so that the 500 are stratified equally into each student type. The ten percent 50 person sub-sample who will take standardized tests

and be studied intensively through case study techniques, will also contain equal numbers from each type. Other institutions may wish to stratify samples differently (e.g., by areas of study) or use random sampling techniques.

During studies, we expect there will be some attrition. The Attrition Questionnaire (AQ) will go to all dropouts from the sample. In addition, we will interview any dropouts who were originally selected for case study analysis. The remaining students from the original main sample (450 estimated) will receive the Student Experience Questionnaire (SEQ) when they register their individualized degree program. At that time, the case study respondents will also be again queried. Other institutions will undoubtedly use a different mid-stream point at which to "drop anchor" such as the end of the sophomore year. The graduation and post-graduate sampling will follow along similar lines though only ten interviews are planned for alumni.

There are control groups at each stage of the longitudinal design. At entrance, since all incoming students receive the SBI, certain variables in the sample will be matched against the entire entering student group. For example, we will ensure that the sample has the same proportions of female, minority, over 50, married, and low socioeconomic students as does the population. This will reduce the likelihood of systematic error. At successive stages, modest-sized groups will be selected at random from the student body to allow comparison with the sub-samples.

The Mentor (faculty) Questionnaire, not shown on the longitudinal design diagram, is administered annually to all faculty at Empire. This allows a variety of analyses on the faculty rating forms as well as providing much other useful data.

While there are many more complicated sampling strategies that could be employed, the above fits the needs of PERC. To use the simplest appropriate methods should be a primary goal for all research.

Illustrative Data Analysis

To illustrate the kind of data analysis that can be made from the PERC model, here is an example drawn from a 1974-75 pilot study at ESC. The pilot meets the minimum conditions of the model with one exception: it is cross-sectional, not longitudinal.

Fifty recent graduates representing three degree programs in the College were the focus of this study. The degree program areas chosen from the curriculum represent a humanities field, a social science field and a professional area. All graduates were asked to rate themselves on a nine-point scale for each of eight outcomes at the time of entry to the College and at the time of graduation which allowed computation of mean scores for ratings at entry and at graduation. Also, the score differences (outcome change) were calculated for each rating dimension and for all dimensions combined across the three degree program areas.

Average experience costs refer to those costs incurred by the College for each graduate during the course of studies. The appropriate mentor and tutor costs for each learning contract[1] were assigned to a given graduate, then aggregated by degree program area and averaged. Table 1 presents the data on both outcome change and related costs for these graduates.

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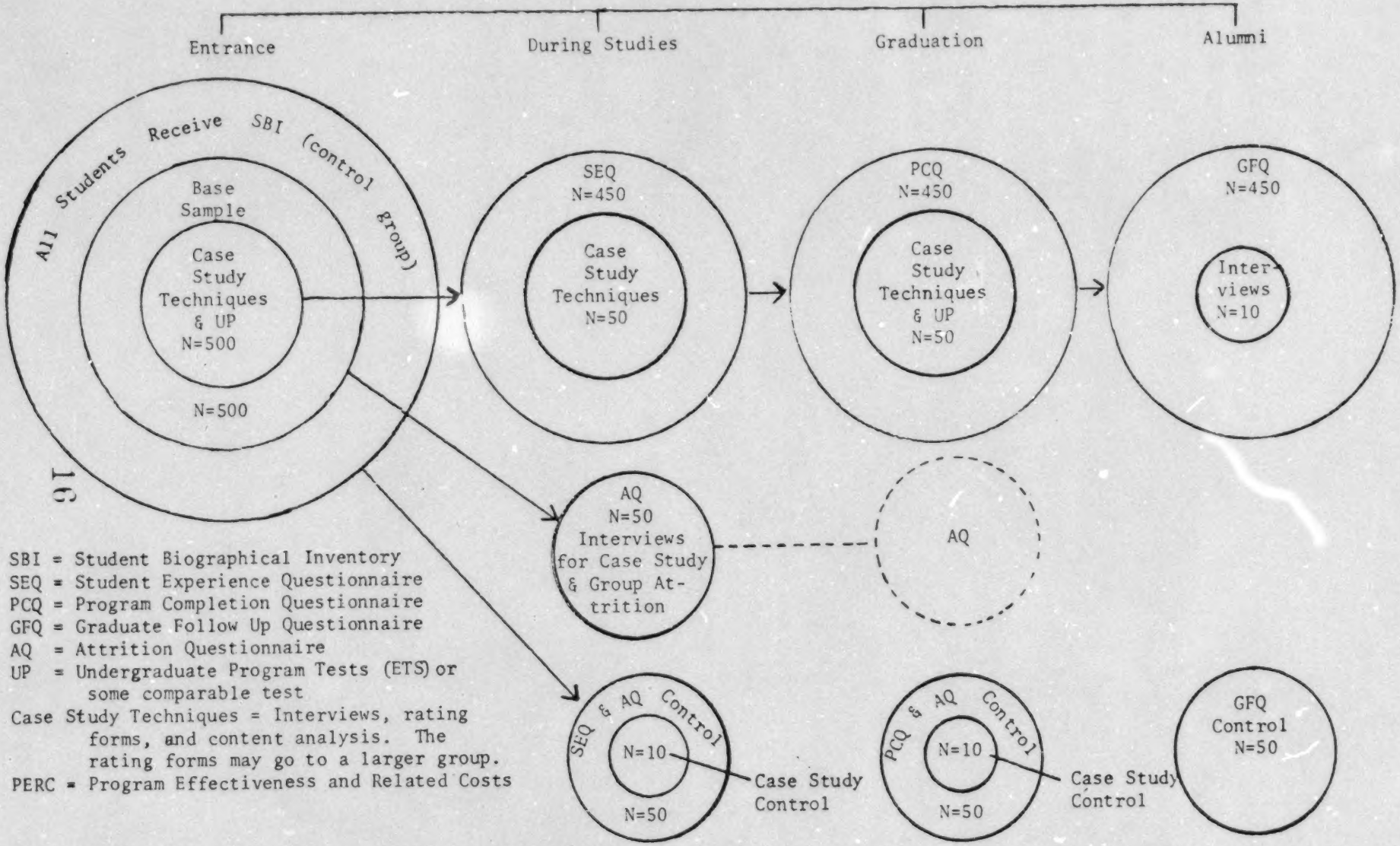
[1] Empire uses learning contracts in place of traditional instruction methods. Other institutions may wish to substitute "course" costs at this point.

Figure 3

PERC Sampling Strategy - A Longitudinal Approach

9-15 month cycle (on the average) at Empire State College



SBI = Student Biographical Inventory
SEQ = Student Experience Questionnaire
PCQ = Program Completion Questionnaire
GFQ = Graduate Follow Up Questionnaire
AQ = Attrition Questionnaire
UP = Undergraduate Program Tests (ETS) or some comparable test
Case Study Techniques = Interviews, rating forms, and content analysis. The rating forms may go to a larger group.
PERC = Program Effectiveness and Related Costs

Table 1. Graduates' Mean Outcome Change and Average Experience Cost by Degree Program Area

Degree Program Area	N	Mean Outcome Change**	Average Experience Cost
a social science area	13	2.95	$1336
a professional area	16	2.12	$1208
a humanities area	12	1.18	$1105
Total	41*	2.10	$1219

*Nine graduates did not complete rating forms out of the original fifty.
**$F = 5.28$; d.f. = 40; $p < .01$.

We expected to find outcome and cost differences among graduates in various degree program areas. This happened. Graduates in the social science area reported the greatest outcome change and also had the highest average cost while the humanities graduates reported the least change and the lowest cost. Outcome changes among graduates by degree program area were statistically significant.

In order to explain the apparent differences in outcomes and related costs (Table 1), we analyzed further some differences among graduates in various degree programs. What the data (Table 2) tells us is that the humanities graduates entered the college with self-ratings considerably higher than the graduates in the other two groups. The humanities graduates perceived themselves to be substantially

stronger in the outcome competencies rated and therefore did not have as much possibility for "growth" on a nine point scale. In contrast, the social science area graduates gave themselves the lowest competency ratings at entry but perceived that they had experienced major learning gains while enrolled at the College.

Table 2. Graduates' Mean Scores at Entry and Graduation by Degree Program Area

Degree Program Area	Mean at Entry	Mean at Graduation	Mean Difference
a humanities area	6.7	7.9	1.2
a professional area	5.4	7.5	2.1
a social science area	5.0	8.0	3.0

The cost differences among the three program areas were related to variations in length of contract experience and the amount of external tutor support used (Table 3). For example, social science graduates on the average attended the college almost one full month (or the equivalent of four credit hours) longer than the other two groups. Furthermore, these graduates show modestly higher average tutor costs, but strikingly higher than the humanities area costs and substantially lower than the costs related to a professional area.

Table 3. Graduates' Contract Experience and Average Tutor Costs by Degree Program Area

Degree Program Area	N	Average Months of Contract Experience	Average Tutor Cost
a social science area	13	7.58	$69.23
a professional area	16	6.75	$81.40
a humanities area	12	6.21	$49.16
Total	41	6.85	$68.11

The significance of the data presented in these three illustrative tables is that by linking costs to outcome change, it is possible to take a variable like degree program area and specify the initial outcome/cost relationship (Table 1). Thus social science graduates experienced greater outcome change while at the college because they held a lower self-rating on the outcome indicators at time of entry, stayed in the college longer and used more tutors on the average than other graduates. When this kind of information is linked to similar ratings on the same set of outcomes made by each graduate's mentor and tutor(s) plus a content analysis of contract work completed, a comprehensive picture of college impact is provided (see the full report of this effort in perc - A Pilot Study, 1975).

The academic and fiscal implications of the above data analysis are also apparent. Although students may vary considerably in competencies as they enter different degree programs, under conditions of contract learning, the longer they stay and the more tutorial resources used in contract work, the greater the perceived outcome change. This greater change also generates higher costs.

Policies concerning faculty work load, admissions criteria, appropriate student body mix (by degree program area) and financial costs to the Empire student may be affected by this finding if the College decides to maximize change for all types of students. The data suggests that requiring eight months minimal residence in the college instead of the current six month period will produce greater outcome change as well as greater costs to both the student and the College. There are major educational and budgetary ramifications if this initial finding holds up in the full PERC study.

Strategies for Data Dissemination and Use

If PERC data are meant to aid critical self-examination and improve the teaching-learning process, the risk of dissemination and application becomes as complex and time consuming as data generation and analysis. Far too often research energies and college resources are spent in the collection of data, assuming that campus decision-makers are eagerly awaiting the results and will put data to immediate use. However, substantial experience tells us that mere reporting of data will not lead to its use unless the data confirm the user's beliefs (Havelock, 1970; Rodgers and Shoemaker, 1971; Palola, et. al., 1974; and Lindquist, 1975). The Handbook, discussed at the conclusion of this chapter, contains a thorough discussion of nine strategies for data dissemination and use. Only two strategies are presented.

Involve Users Throughout the Research & Dissemination Process

Our experience and that of others suggests that campus groups do not automatically respond favorably to PERC questions, data analysis, research reports and policy recommendations developed. However, direct personal involvement enhances a sense of ownership, stimulates credibility and fosters interest in important campus issues. One technique that has proven effective is establishment of a research advisory committee composed of faculty, students and administrators who are interested in research. A double bonus is gained if such people also are highly respected by their peers. This Research Advisory Committee (RAC) at Empire State College has sharpened research questions, reviewed research designs for various studies, commented on appropriate methodologies, and critiqued research reports. In addition, RAC assists in implementing recommendations and policy changes that flow out of PERC.

A second technique is for the research staff to regularly visit various academic, administrative and student units on a campus to share ideas, common problems and listen to suggestions. A similar idea is to hold workshops to study the data further, pursue new problems suggested by the data or plan for implementing policies based upon PERC information.

We also recommend that students should participate throughout the process. Students are most directly involved in the educational program, in large part the source of data, and greatly affected by policy changes that result from such studies. They provide a freshness and honesty to the research process that keeps others from skirting sometimes sensitive substantive problems.

Seek Small, Cross-Group Interactions

Communication research indicates that only persons ready to agree with the message are likely to be persuaded by formal communications--research reports and presentations, (Hovland, et. al., 1953). Others need personal interaction with researchers and opinion leaders. However, large faculty meetings or meetings of only one reference group (e.g., all administrators) are likely to result only in confirmation of the views of major speakers or in attacks (e.g., lousy sample, biased questions, irrelevant points). Thus, we suggest trained leaders to help small groups with mixed membership--students, social scientists, humanists, administrators, liberals, conservatives--work through the data. Another strategy is small groups identifying major college strengths and weaknesses suggested by the data and then reporting their findings to the general group. Using small groups increases the possibility that all parties will contribute and often lends a sense of validity when various strengths and weaknesses are independently identified by several groups.

Final Observations

In this chapter we have presented an overview and brief discussion of ESC's PERC model. For colleges and universities who take the question of evaluation seriously and who want to build relationships between program effectiveness and related costs, certain minimum tasks must be completed. These are:

first, the relationship between outcomes and costs is the primary focus of the evaluation. One should trace out what happens to students (intellectually and personally)while attending the institution and how much money was spent from all sources in various programs to achieve results. By doing this, one can learn what it costs to achieve different outcomes, and use this information in improving the learning process, program evaluation, budgeting, and long-range planning.

second, the evaluation study produces value-added information about students, including pre-and post-measures on the same subjects. That is, it obtains data (formally and informally, hard and soft, quantitative and qualitative) on specified intellectual and personal attributes of students at entry and completion of their programs. The key question here is: how much have students moved or changed in specified characteristics while participating in the institution's program?

third, data about student change and development is collected from at least two sources, the student him/herself and his/her faculty mentor. This ensures multiple perspectives in cost/effectiveness evaluation.

fourth, two types of measurement, quantitative and qualitative, should be used to study and evaluate student change and development. Over-reliance on quantitative measures often overlooks rich and sometimes subtle information about students. Further, qualitative information, particularly case studies, generate continuous data necessary to sort out where impact on students occurred in the program. While no one measure is adequate, multiple measures create chains of evidence on effectiveness.

fifth, data are evaluated and interpreted from two points of view, ideally one inside and one outside the program. This step moves reports on "outcomes" to measures of "effectiveness," i.e., "standards," "quality indicators," or "indices of success" are applied to judge the value or desirability, even the acceptability of observed student outcomes.

What does this model mean to you and your college? In all likelihood, it means a major rethinking of institutional priorities and adopting new ways of allocating scarce resources. Research and evaluation must become a high priority function and supported with appropriate funds and staff. This does not mean creating another institutional research office which collects traditional information about space, FTE costs, grade point averages, faculty load, and the like. For current internal decision-making use, traditional IR data is absolutely necessary. As we have argued in this chapter, that kind of data is not sufficient to answer vital questions about student growth and program evaluation nor the linkage between these outcomes and related costs. The PERC model provides this information and strategies by which it can be used.

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APPENDICES

Student Biographical Inventory
Empire State College
Office of Research and Evaluation

Dear Empire State College Student:

Empire State is a nontraditional College founded in 1971 with four mandates: to serve a different student clientele from the existing institutions of New York, to provide alternative forms of instruction, to provide quality education, and to do all this for less cost. ESC's responses to these mandates include a statewide "campus," use of individualized learning contracts rather than classes, and procedures for granting credit on the basis of prior school and non-school learning. There is widespread interest in these efforts throughout New York State and the nation. This questionnaire, the Student Biographical Inventory (S. B. I.), is an important part of the College's reply to this interest.

The S. B. I. is designed to provide a picture of the students attending ESC, their reasons for coming here, and their goals. It is the first link in a long-term effectiveness study conducted by the College Office of Research and Evaluation and supported by a grant from the United States Department of Health, Education, and Welfare. Our design calls for follow-up questionnaires and interviews with some of you at three other points: sometime during your studies, at graduation, and a year or two later. The aim of this research is to uncover what kinds of students change in what kinds of ways following what kinds of experiences and at what costs. S. B. I. results will help ESC improve current programs and make better-informed planning decisions as well as help other states determine whether they should undertake development of similar institutions.

We encourage and solicit your cooperation on this research instrument. Note that this S. B. I. is **not** a test. The only "right" answers are those which reflect your own perceptions, judgments, and opinions. If for some reason you do not wish to answer a particular question, it is your option. This is a voluntary questionnaire. However, be assured that **your responses will be held in the strictest professional confidence.** That is, an individual's response will be available to the Research staff only and under **no** circumstances will individual responses be reported to anyone. We ask for identifying information to allow the Office of Research and Evaluation to conduct the various follow-ups mentioned above.

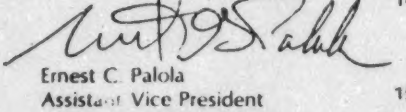
The S. B. I. includes questions seen as sensitive by some people. For example, we ask about such things as your race, ethnic orientation, financing, and parents' occupations. These questions were chosen because they are areas in which ESC students may be similar to or different from students at traditional institutions. Since Empire is mandated by the State of New York to serve students not generally served by traditional modes of higher education, this is vital information for a study of institutional effectiveness.

The Office of Research and Evaluation will prepare various reports using aggregate information obtained from the S. B. I. If you would like copies, please send the enclosed postcard. Also, if you want an explanation of the rationale behind any item on the S. B. I., please contact the Office of Research and Evaluation.

We think that the S. B. I. will help focus your thinking about educational goals and about Empire. It should take no longer than 15-30 minutes. When you have completed it, please mail the questionnaire to the Office of Research and Evaluation in the enclosed envelope.

Thank you for your help.

Sincerely,



Ernest C. Palola
Assistant Vice President
for Research & Evaluation
Empire State College
Saratoga Springs, N. Y. 12866

I. GENERAL INFORMATION The following questions ask for background information about where you have lived, your occupational interests and the community where you grew up. Mark the appropriate answer as indicated in the question.

1. Name _____
   Last First Middle
2. Social Security Number ___ ___ ___ - ___ ___ - ___ ___ ___ ___
3. Your Empire State College Center or Unit? _____
4. Your Sex: Male ( ) Female ( )
5. Year of Birth _____
6. a. Marital Status: (Mark one) Married ( ) Not married ( )
   b. How many children do you have? _____
   c. How many dependents live with you (include spouse)? _____
7. Have you ever served on active duty in the United States Armed Forces?
   Yes, am serving now ( ) No ( )
   Yes, but not serving now ( )
8. How many years in total have you resided in New York State? (Mark one)
   Never ( ) 6-10 years ( )
   Less than 1 year ( ) 11 or more years ( )
   1-5 years ( )
9. How many years have you resided at your present address? (Mark one)
   Less than 1 year ( ) 6-10 years ( )
   1-5 years ( ) 11 or more years ( )
10. How many states have you resided in (include N. Y.)? _____
11. How many countries have you resided in (include U. S.)? _____

If you did not live with your natural parents, answer the next two questions about the parents or guardians who most influenced your life.

12. a. What is the highest level of formal education obtained by your parents and spouse? (Mark appropriate level for each parent and spouse)

	Father	Mother	Spouse
Grammar school or less	( )	( )	( )
Some high school	( )	( )	( )
Finished high school	( )	( )	( )
Some college (less than A. A. or equivalent)	( )	( )	( )
Associate degree (A. A. or equivalent)	( )	( )	( )
College degree (B. A., B. S., etc.)	( )	( )	( )
Some graduate or professional training	( )	( )	( )
Graduate or professional degree	( )	( )	( )
Does not apply	( )	( )	( )
b. In addition, did they			
Attend Trade School	( )	( )	( )
Graduate from Trade School	( )	( )	( )

13. On the lines below, please indicate **your** primary occupation, your **spouse's,** your **father's,** and that of your **mother.** Please be as specific as possible (e.g., Shop Foreman, Ford Plant; Housewife; Jr. High School Teacher; Retail Salesperson, "Sears" and other stores; President of Local Union, I. U. E.)
   a. **Your** primary occupation ( ) (Check here if not applicable)
   _____
   b. Your **spouse's** primary occupation ( ) (Check here if not applicable)
   _____
   c. Your **father's** primary lifetime occupation ( ) (Check here if not applicable)
   _____
   d. Your **mother's** primary lifetime occupation ( ) (Check here if not applicable)
   _____
14. Please indicate on the line below if you have held a second job in the past year and what it was. ( ) (Check here if not applicable)
   _____
15. If employed, how many hours per week do you work? (Mark one)

Does not apply (e.g., housewife, unemployed)	( )	21 to 30 hours	( )
10 hours or less	( )	31 to 40 hours	( )
Between 11 and 20 hours	( )	Over 40 hours	( )

In order for ESC to comply with US Office of Education data requirements on race, color, and national origin of its students; we request that you respond to the following question.

16. Are you (please mark the one that best applies):

White/Caucasian-American	( )	Oriental-American	( )
Black/Negro/Afro-American	( )	Mexican-American/Chicano	( )
American Indian	( )	Puerto Rican-American	( )

Other (e.g., foreign student) ___ _____

17.a. Do you feel a strong identification with any ethnic group (e.g., Italian)?

Yes ( ) No ( )

b. If yes, please specify _____

18. Which best describes the community that you thought of as your hometown when you were in secondary school? (Mark one)

Farm or open country	( )	Medium-sized city (100,000 - 500,000)	( )
Town (under 10,000)	( )		
Small city (10,000 - 100,000)	( )	Large city (500,000 or more)	( )

19. Please list all voluntary programs or civic organizations in which you have participated in the past five years (e.g., Fire Dept., Church activity or Auxiliary groups, School Board, Little League).

Program or Organization	If you held an office, please name it below:

II. PREVIOUS EDUCATION

The following questions deal with previous accomplishments that apply to your high school and college experiences.

20. From what kind of secondary school did you graduate? (Mark one)

Public high school	( )	Private military academy	( )
Private (nonreligious, nonmilitary)	( )	Did not graduate	( )
Church-related	( )		

Other (please specify) _____

21. Where did you rank academically in your high school graduation class? (Mark the one that best applies)

Top 10 percent	( )	Bottom half	( )
Top quarter	( )	Don't remember	( )
Top half	( )		

22. How hard did you study in high school? (Mark one)

I studied very little, less than average	( )
I studied about the same as most students	( )
I studied hard, more than average	( )
I studied very hard, much more than average	( )

23.a. Is this the first time that you have enrolled in any educational institution beyond high school?

Yes ( ) No ( )

b. If no, please list previous institution(s) and reasons for leaving

Institutions and Cities	Reasons for Leaving

24.a. Have you ever attended a proprietary institution (e.g., barber school, business school, secretarial school, mortician school, etc.)?

Yes ( ) No ( )

b. If yes, please list institutions, cities, type of school, and whether you finished.

Institution(s) and Cities	Type of School	If you finished, please check
		( )
		( )
		( )

25. Have you ever taken in-service training courses in connection with your job (e.g., at General Electric, Civil Service course, etc.)?

No ( )

Yes ( ) If yes, please describe briefly.

_____

_____

_____

26. When did you last study for credit at a high school, college, or other recognized institution (e.g., trade school, correspondence school)? (Mark one)

Does not apply	( )	Between 6-10 years	( )
Within past year	( )	Between 11-20 years	( )
Between 1-5 years	( )	20 years or more	( )

27. Are there any other learning experiences that you consider to be highly significant (e.g., Peace Corps, extraordinary travel, etc.)?

_____

_____

_____

_____

III. EXTERNAL SUPPORTS

The following questions concern your ability to finance a college education, and people supports.

28. Do you have any concern about your ability to finance your college education? (Mark one)

I am confident that I will have sufficient funds without any financial aid.	( )
I will probably have enough funds without any financial aid.	( )
I will probably have enough funds but may need some financial aid.	( )
I will be able to complete college only with financial aid.	( )
I am not sure I will be able to finish college even with much financial aid.	( )

29. Sources of financing: (please answer all items)

	Major	Minor	Not a Source
a. Full and/or Part-time work	( )	( )	( )
b. Savings	( )	( )	( )
c. Parental aid	( )	( )	( )
d. Employer support	( )	( )	( )
e. Aid from spouse	( )	( )	( )
f. Grants	( )	( )	( )
g. Loans	( )	( )	( )

h. Other (please specify) _____

30. What was your total income last year independent of your parents? Consider annual income from all sources before taxes. (If married, include spouse's income.) (Mark one)

None	( )	$10,001 - $15,000	( )
Less than $1,000	( )	$15,001 - $20,000	( )
$1,001 - $4,000	( )	$20,001 - $30,000	( )
$4,001 - $7,000	( )	$30,001 +	( )
$7,001 - $10,000	( )		

31. Given your other responsibilities (job, marriage, family, etc.), how difficult do you think it will be for you to "keep up" at Empire?

I can do what I have to do rather **easily.**	( )
Going to ESC, under current circumstances, will require **some** effort.	( )
Going to school, under current circumstances, will require a **very substantial** effort.	( )
I am concerned that I **may not** be able to do all the things planned.	( )

32. How do your family, friends, and employer feel about your enrolling at ESC?

	Family	Friends	Employer
Strongly encouraging	( )	( )	( )
Somewhat encouraging	( )	( )	( )
Neutral	( )	( )	( )
Somewhat discouraging	( )	( )	( )
Strongly discouraging	( )	( )	( )
Not applicable (e.g., unemployed) or I can't say	( )	( )	( )

IV. YOUR SELECTION OF ESC

The following questions concern your decision to enroll at ESC.

33. To how many colleges other than Empire State College did you apply this year and at how many were you accepted?

Applied _____ Accepted _____

34.a. What is the single most important reason that you have never before obtained the degree you now seek?

_____

b. Were there any other important reasons?

_____

_____

35. How many miles from your residence is the ESC unit with which you will affiliate? (Mark one)

2 or less	( )	11 - 25	( )	51 - 100	( )
3 - 10	( )	26 - 50	( )	101 - 200	( )
				more than 200	( )

36. How did you find out about Empire State College? (Check as many as are applicable)

a. From an Empire State College student ( )
b. From an Empire State College staff member ( )
c. From advertisements or an article in the media (newspaper, TV, radio) ( )
d. From a staff member of another institution ( )
e. From reading an ESC bulletin ( )
f. From a high school or college counselor ( )
g. From my employer ( )
h. From a friend or family member ( )
i. Other (please specify) _____

37. What will be your primary area of study at Empire State?

_____

38. In terms of your personal life (e.g., leisure time with family and friends) how much do you think you will have to give up in order to find time for ESC studies?

A great deal ( ) Some ( ) Very little ( )

39. In deciding to enroll at Empire State College, how important to you was each of the following reasons? (Mark one answer for each reason) Also, circle the letter of the item that is **most** important to you.

	Not Important	Somewhat Important	Very Important
a. The possibility of receiving credit for prior informal learning experiences	( )	( )	( )
b. The good reputation of Empire State College	( )	( )	( )
c. I have friends at Empire State College.	( )	( )	( )
d. The low tuition of Empire State College	( )	( )	( )
e. A previous Empire State College student recommended the College	( )	( )	( )
f. The special programs offered by Empire State College	( )	( )	( )
g. The independence allowed by Empire State College	( )	( )	( )
h. My boss suggested that I go to Empire State College	( )	( )	( )
i. I can work as well as study at Empire State College	( )	( )	( )
j. A counselor recommended Empire State College	( )	( )	( )
k. My parents wanted me to go	( )	( )	( )
l. My spouse wanted me to go	( )	( )	( )
m. I wanted to live at home while attending college.	( )	( )	( )
n. The chance to obtain a degree quickly.	( )	( )	( )
o. Other (please specify) _____			

V. HOW DO YOU VIEW YOURSELF?

The following questions ask you about your activities and to appraise yourself.

40. Below is a general list of things that people sometimes do. In the past year, how many times have you in your leisure:

	Never 0	Rarely 1-3	Sometimes 4-9	Often 10+
a. read some poetry	( )	( )	( )	( )
b. read a practical book or journal (e.g., Ladies Home Journal, Popular Mechanics)	( )	( )	( )	( )
c. read articles in intellectually-oriented magazines or professional journals (e.g., The Atlantic Monthly, Commonweal, Science, Harpers)	( )	( )	( )	( )
d. read the editorial column of a newspaper	( )	( )	( )	( )
e. read a mystery, spy novel, or similar kind of "escape" book	( )	( )	( )	( )
f. read accounts of contempory events in a magazine (e.g., Newsweek, Time, US News & World Report)	( )	( )	( )	( )
g. read a book on social science (e.g., history, psychology, sociology, geography, economics, political science, education)	( )	( )	( )	( )
h. read a book in arts and humanities (e.g., music, art, dance, literature, philosophy, religion, a foreign language)	( )	( )	( )	( )
i. discussed the merits of political/economic system (e.g., communism, socialism, capitalism, etc.)	( )	( )	( )	( )
j. discussed world or national problems	( )	( )	( )	( )
k. discussed social issues with friends (e.g., civil rights)	( )	( )	( )	( )
l. discussed a scientific theory or event (e.g., open heart surgery)	( )	( )	( )	( )
m. discussed art or music	( )	( )	( )	( )
n. discussed philosophy or religion	( )	( )	( )	( )
(con'td.)				
40 con'td.)				
o. discussed plays, novels, or poetry	( )	( )	( )	( )
p. discussed a movie	( )	( )	( )	( )
q. discussed a sports event	( )	( )	( )	( )
r. discussed recipes, home decorating, etc.	( )	( )	( )	( )
s. attended a scientific lecture	( )	( )	( )	( )
t. visited a scientific exhibit	( )	( )	( )	( )
u. took tours of factories, businesses, etc.	( )	( )	( )	( )
v. observed governmental agencies (e.g., FBI, US Mint)	( )	( )	( )	( )
w. attended a stage play	( )	( )	( )	( )
x. attended a movie	( )	( )	( )	( )
y. attended a lecture on a current social, economic or political problem	( )	( )	( )	( )
z. attended a music recital or concert	( )	( )	( )	( )
aa. attended a sports event	( )	( )	( )	( )
bb. visited an art exhibit	( )	( )	( )	( )
cc. visited a library	( )	( )	( )	( )
dd. tried some sketching, drawing, painting, sculpture, etc.	( )	( )	( )	( )
ee. watched TV news specials (e.g., Watergate) or documentaries (e.g., "Inside the Bamboo Curtain: Red China Today")	( )	( )	( )	( )
ff. explained or illustrated a scientific principle to someone	( )	( )	( )	( )
gg. watched a sports event on TV	( )	( )	( )	( )
hh. attempted to invent something or to solve a mathematical puzzle	( )	( )	( )	( )
ii. attempted to fix a complicated piece of machinery (e.g., auto, sewing machine, TV)	( )	( )	( )	( )

41. Rate yourself on each of the following traits when compared with the average person of your own age. We are interested in estimates of how you see yourself.

Trait	Lowest 10%	Below Average	Average	Above Average	Highest 10%
a. Ability to handle stress	( )	( )	( )	( )	( )
b. Academic ability	( )	( )	( )	( )	( )
c. Athletic ability	( )	( )	( )	( )	( )
d. Artistic ability	( )	( )	( )	( )	( )
e. Cheerfulness	( )	( )	( )	( )	( )
f. Drive to achieve	( )	( )	( )	( )	( )
g. Idealism	( )	( )	( )	( )	( )
h. Impulsiveness	( )	( )	( )	( )	( )
i. Independence	( )	( )	( )	( )	( )
j. Leadership ability	( )	( )	( )	( )	( )
k. Mathematical ability	( )	( )	( )	( )	( )
l. Mechanical ability	( )	( )	( )	( )	( )
m. Optimism	( )	( )	( )	( )	( )
(con'td.)					

(41 con'td.) Trait	Lowest 10%	Below Average	Average	Above Average	Highest 10%
n. Originality	( )	( )	( )	( )	( )
o. Personal Organization	( )	( )	( )	( )	( )
p. Persistence	( )	( )	( )	( )	( )
q. Popularity	( )	( )	( )	( )	( )
r. Public speaking ability	( )	( )	( )	( )	( )
s. Reading ability	( )	( )	( )	( )	( )
t. Resourcefulness	( )	( )	( )	( )	( )
u. Self-confidence (intellectual)	( )	( )	( )	( )	( )
v. Self-confidence (social)	( )	( )	( )	( )	( )
w. Sensitivity to criticism	( )	( )	( )	( )	( )
x. Stubbornness	( )	( )	( )	( )	( )
y. Tolerance	( )	( )	( )	( )	( )
z. Writing ability	( )	( )	( )	( )	( )

VI. PERSONAL GOALS The following questions concern your future academic goals and your assessment of selected skills and abilities.

42. At Empire State College, how important is it that you achieve the following general objectives? (Mark one answer for each reason) Also, circle the letter of the item that is **most** important to you.

	Not Important	Somewhat Important	Very Important
a. To increase my appreciation of art, music, literature, and other cultural expressions	( )	( )	( )
b. To discover my vocational interests	( )	( )	( )
c. To develop a new career	( )	( )	( )
d. To attain specific skills that will be useful on a job	( )	( )	( )
e. To meet the academic requirements necessary to enter a profession or graduate school	( )	( )	( )
f. To become involved in social and political concerns	( )	( )	( )
g. To increase my awareness of different philosophies, cultures and ways of life	( )	( )	( )
h. To improve my chances of making more money	( )	( )	( )
i. A degree is required for my present or future job	( )	( )	( )
j. To learn how to participate effectively as a citizen in my community	( )	( )	( )
k. To develop an understanding and an appreciation of science and technology	( )	( )	( )
l. To improve my self image	( )	( )	( )
m. Simply, to learn	( )	( )	( )
n. To improve my professional status	( )	( )	( )
o. To increase my desire and ability to undertake self-directed learning	( )	( )	( )
p. Other (please specify) _____	( )	( )	( )

43. What is the highest academic degree that you intend to obtain? (Mark one)

None	( )	Doctor of Philosophy or Education (Ph.D. or Ed.D.)	( )
Associate degree (AA or equivalent)	( )	Medical degree (MD, DDS, etc.)	( )
Bachelor's degree (BA, BS, etc.)	( )	Law degree (LL. B., JD)	( )
Master's degree (MA, MS, etc.)	( )	Bachelor or Doctor of Divinity (BD or DD)	( )

Other, please specify _____

44. Listed below are areas of intellectual competence of particular concern to some students. Indicate where you think you are now in relation to other people your age. For more complete descriptions of these areas, see the section on College Objectives in your Empire State Catalogue. We realize that this is a difficult item, but please give it your best shot.

Areas of Intellectual Competence	Where you are in Relation to Others your age				
	Lowest 10%	Below Aver.	Aver.	Above Aver.	Highest 10%
a. **Communication skills:** (to write and speak clearly, correctly and effectively)	( )	( )	( )	( )	( )
b. **Knowledge** of information, theories, generalization, methods of inquiry, and criteria for judgments)	( )	( )	( )	( )	( )
c. **Comprehension** of knowledge (thus allowing personal interpretations)	( )	( )	( )	( )	( )
d. Ability to **analyze,** (to break down an experience into basic elements)	( )	( )	( )	( )	( )
e. Ability to **evaluate,** (to make qualitative and quantitative judgments about the value of information, materials and methods)	( )	( )	( )	( )	( )
f. Ability to **synthesize,** (to arrange and combine elements so that new patterns appear)	( )	( )	( )	( )	( )
g. Ability to **apply,** (to use theory in practical activities)	( )	( )	( )	( )	( )

45. Listed below are areas of personal development of particular concern to some students. Please rate where you think you are now in relation to other people your age. For more complete descriptions of these areas, see the section on College Objectives in your Empire State Catalogue. We realize that this is also a difficult item, but please try to respond.

Areas of Personal Development	Where you are in Relation to Others your age				
	Lowest 10%	Below Aver.	Aver.	Above Aver.	Highest 10%
a. **Interpersonal competence,** the ability to interpret the intentions and attitudes of others and to improvise appropriate responses.	( )	( )	( )	( )	( )
b. **Awareness,** openness to new ideas and experiences, sensitivity to social conditions and cultures	( )	( )	( )	( )	( )
c. **Clarifying purposes,** concerns vocational interests, non-vocational interests, and general life-style considerations	( )	( )	( )	( )	( )
d. **Self-reliance,** the capacity to act independently	( )	( )	( )	( )	( )
e. **Self-understanding,** the process of self-examination and discovery of personal motives, strengths, and weaknesses	( )	( )	( )	( )	( )
f. **Understanding of others,** the capacity to move beyond relationships of simple understanding to those where there are sympathetic responses to diverse kinds of persons and their conditions	( )	( )	( )	( )	( )
g. **Self-consistency,** the clarification of attitudes and values so that words and actions are in harmony	( )	( )	( )	( )	( )

46. We would appreciate any comments you might have about problems you encountered with this inventory.

May, 1974

Instructions for the Student Self-Rating Forms

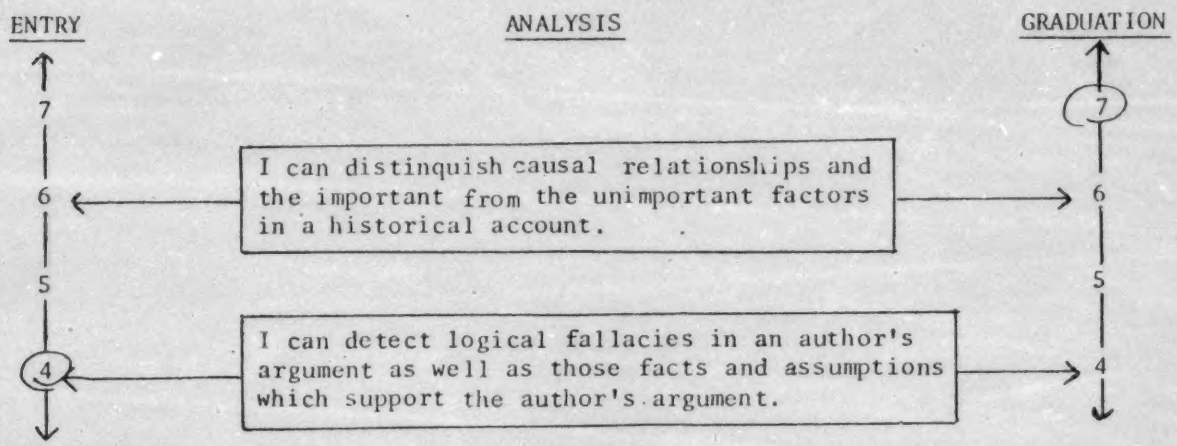
On the following pages, you are asked to rate yourself on several areas of intellectual competence and personal development. You are asked to rate your level of competence when you entered ESC and your level of competence at the time you graduated. It may be that a few areas were not a part of your learning activities at the College and the box in the lower left hand corner should be checked if this is the case.

Each area is defined at the top of the page and is to be rated in terms of a nine point scale. The four boxes in the middle of the page contain specific examples to facilitate your rating. We suggest that you take time to look at each scale carefully, reading the boxes from bottom to top and back down before making a rating. The arrows from the boxes to each scale illustrate where a particular statement fits on the scale. The same boxes apply to your rating at graduation and to your rating at entry. We ask you to CIRCLE the appropriate number on each scale that indicates your level at time of entry and at time of graduation.

You should be as candid and accurate in your ratings as you can be. We are not interested in having you rate yourself higher (or lower) unless your actual learning corresponds to that rating. Attached to this pack of self rating forms are all of your digest and evaluations for the learning contracts you had. Before beginning your ratings, please read over these digest and evaluations in order to refresh your memory. We are asking you to make a global rating for each area which includes all the work you did as summarized on the digest and evaluations.

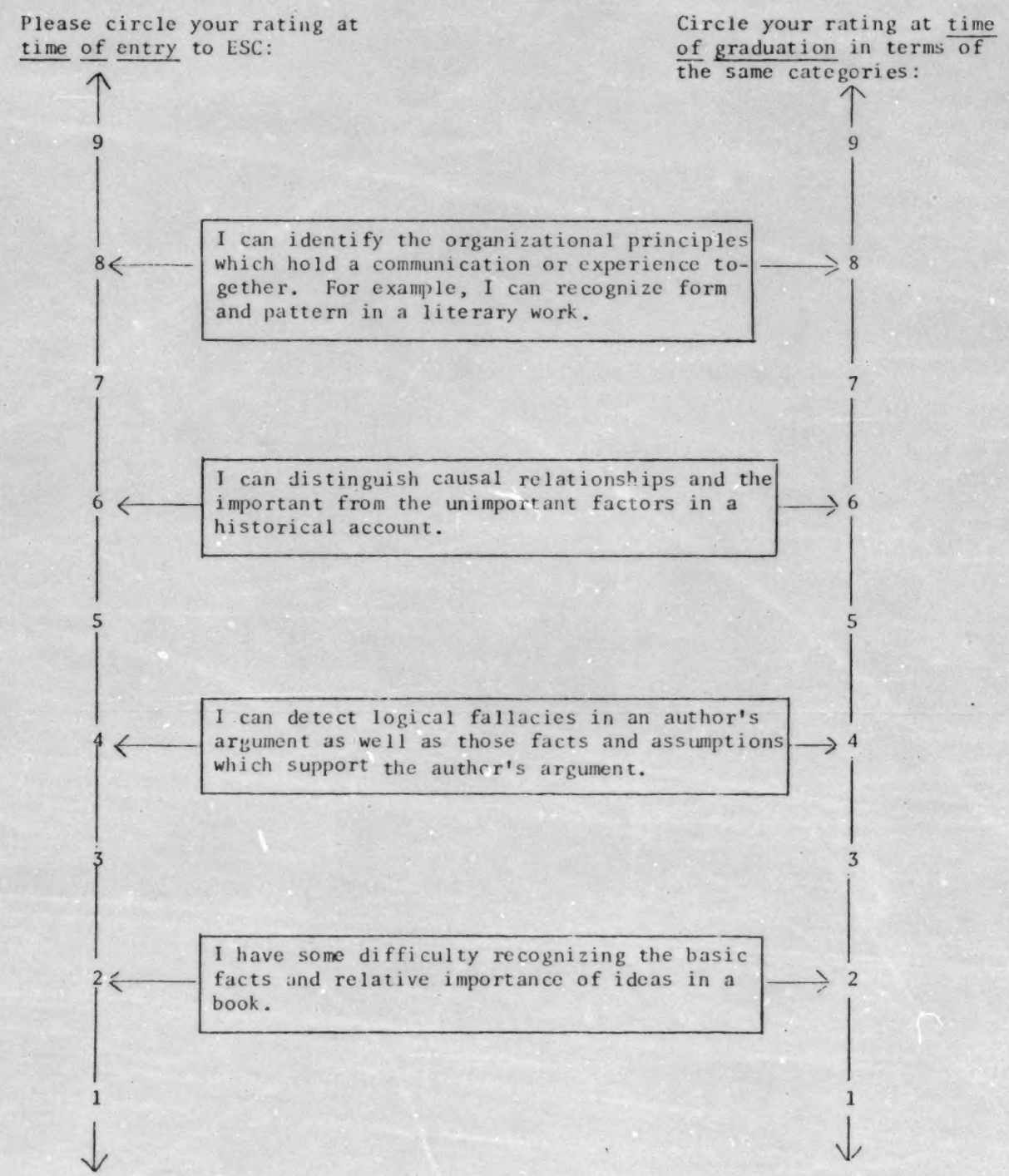
An Example.

A student who entered the College with two years of previous college work already had a fair competence in analysis at entry at ESC. Thus, the student circled a rating of 4 on the entry scale. After completing three learning contracts with the College where several papers were written, a field project was undertaken and the student's own research study was conducted, the student had gained considerable experience in analysis. Therefore, the student rated his analytical abilities at 7 by the time of graduation.



ANALYSIS

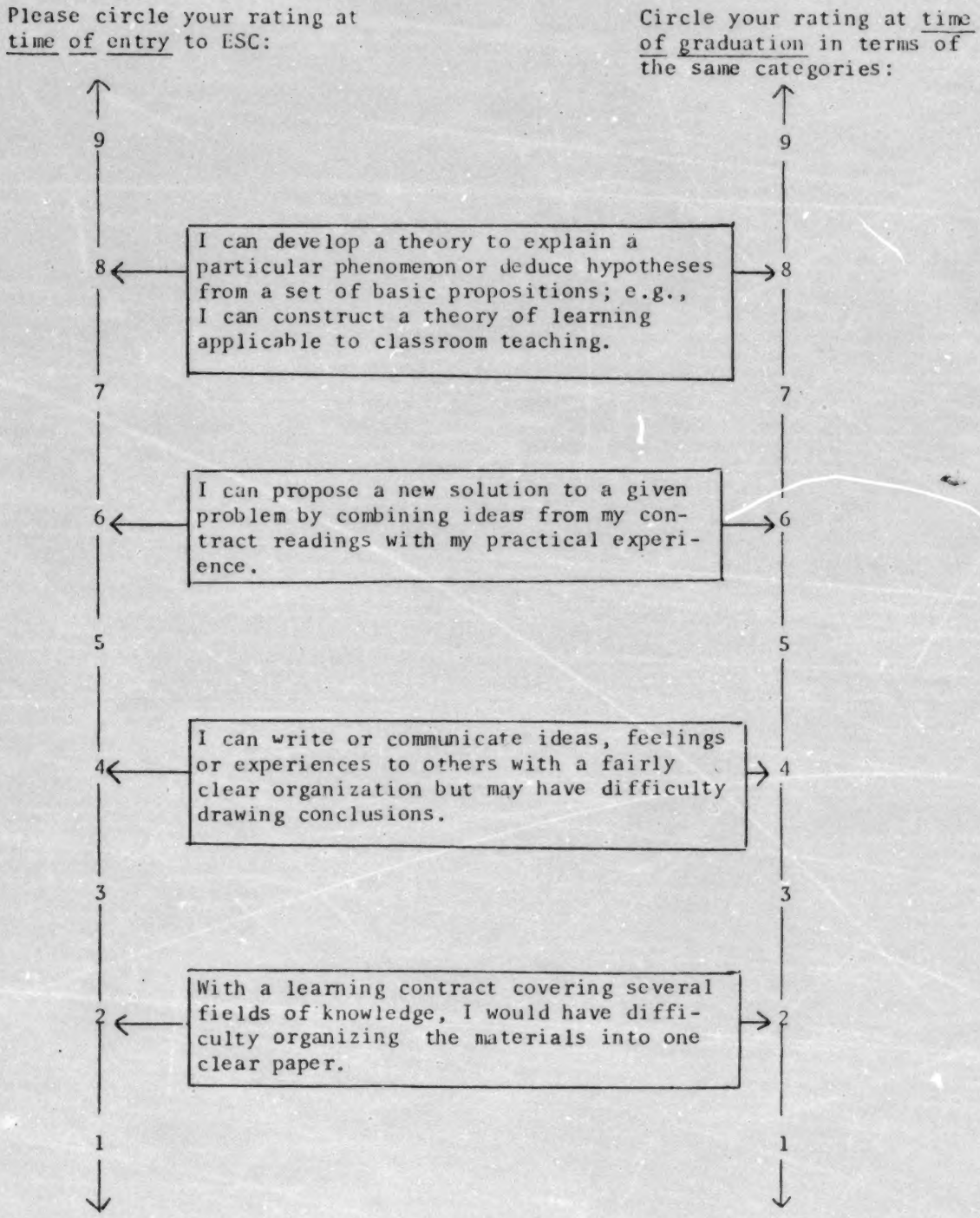
Definition: Analysis is the ability to break down a communication or experience into its basic elements, to identify the relative importance of ideas and to make explicit the relationships among them.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
I can identify the organizational principles which hold a communication or experience together. For example, I can recognize form and pattern in a literary work.
7
6
I can distinguish causal relationships and the important from the unimportant factors in a historical account.
5
4
I can detect logical fallacies in an author's argument as well as those facts and assumptions which support the author's argument.
3
2
I have some difficulty recognizing the basic facts and relative importance of ideas in a book.
1

☐ This area of competence was not a part of my ESC work.

SYNTHESIS

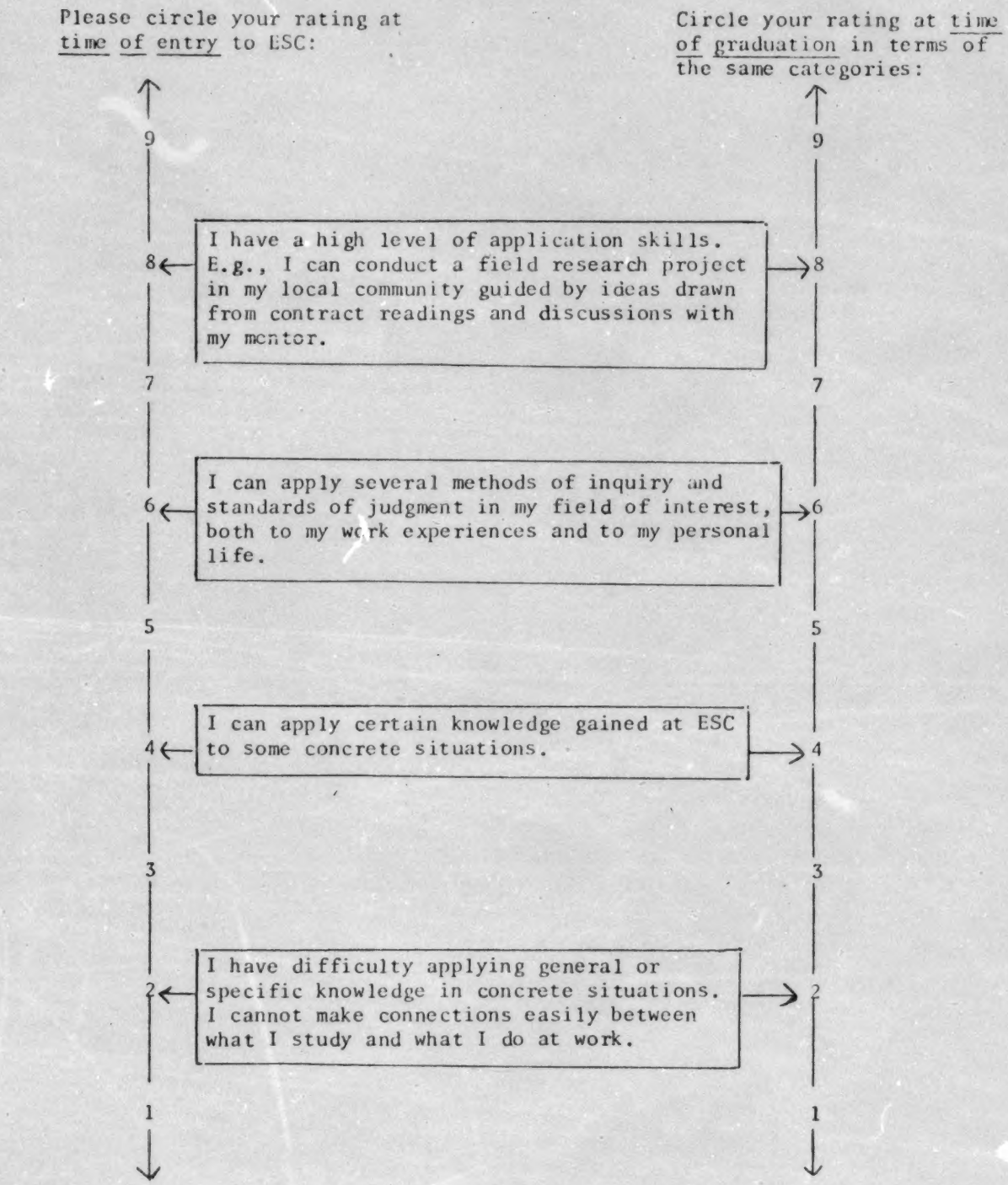
Definition: Synthesis involves arranging and combining elements so that a new structure or pattern emerges. The ability to synthesize, demonstrates the intellectual competence to form a new hypothesis, organize a new experiment or propose a solution to a given problem.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
I can develop a theory to explain a particular phenomenon or deduce hypotheses from a set of basic propositions; e.g., I can construct a theory of learning applicable to classroom teaching.
7
6
I can propose a new solution to a given problem by combining ideas from my contract readings with my practical experience.
5
4
I can write or communicate ideas, feelings or experiences to others with a fairly clear organization but may have difficulty drawing conclusions.
3
2
With a learning contract covering several fields of knowledge, I would have difficulty organizing the materials into one clear paper.
1

☐ This area of competence was not a part of my ESC work.

APPLICATION

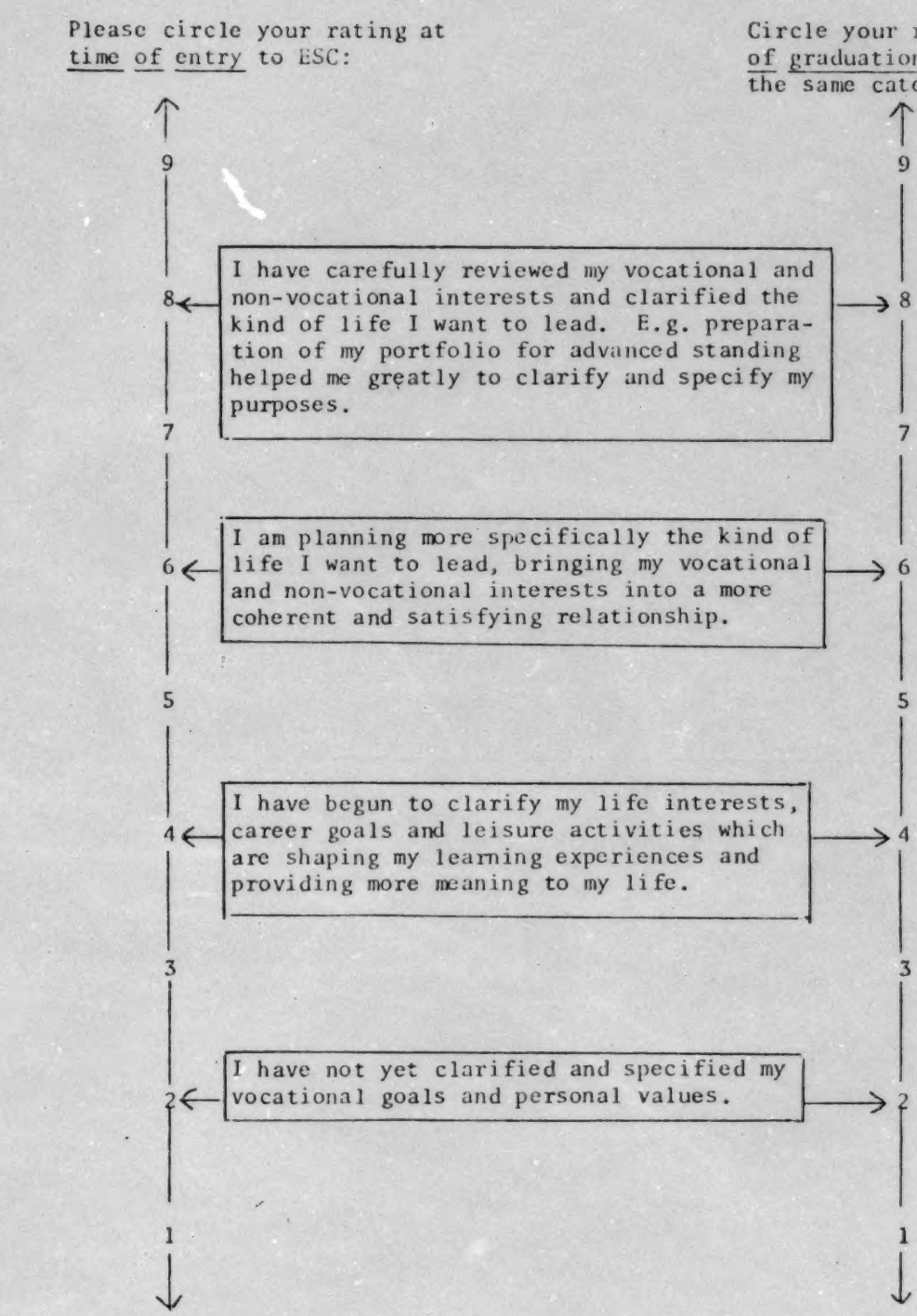
Definition: Application is the ability to use theories and concepts in concrete situations and practical activities. Application also implies the ability to compare one set of ideas and experiences with another in order to consider their implications and potential consequences. Application uses relevant knowledge to identify problems and to propose and implement solutions.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
I have a high level of application skills. E.g., I can conduct a field research project in my local community guided by ideas drawn from contract readings and discussions with my mentor.
7
6
I can apply several methods of inquiry and standards of judgment in my field of interest, both to my work experiences and to my personal life.
5
4
I can apply certain knowledge gained at ESC to some concrete situations.
3
2
I have difficulty applying general or specific knowledge in concrete situations. I cannot make connections easily between what I study and what I do at work.
1

☐ This area of competence was not a part of my ESC work.

CLARIFYING PURPOSES

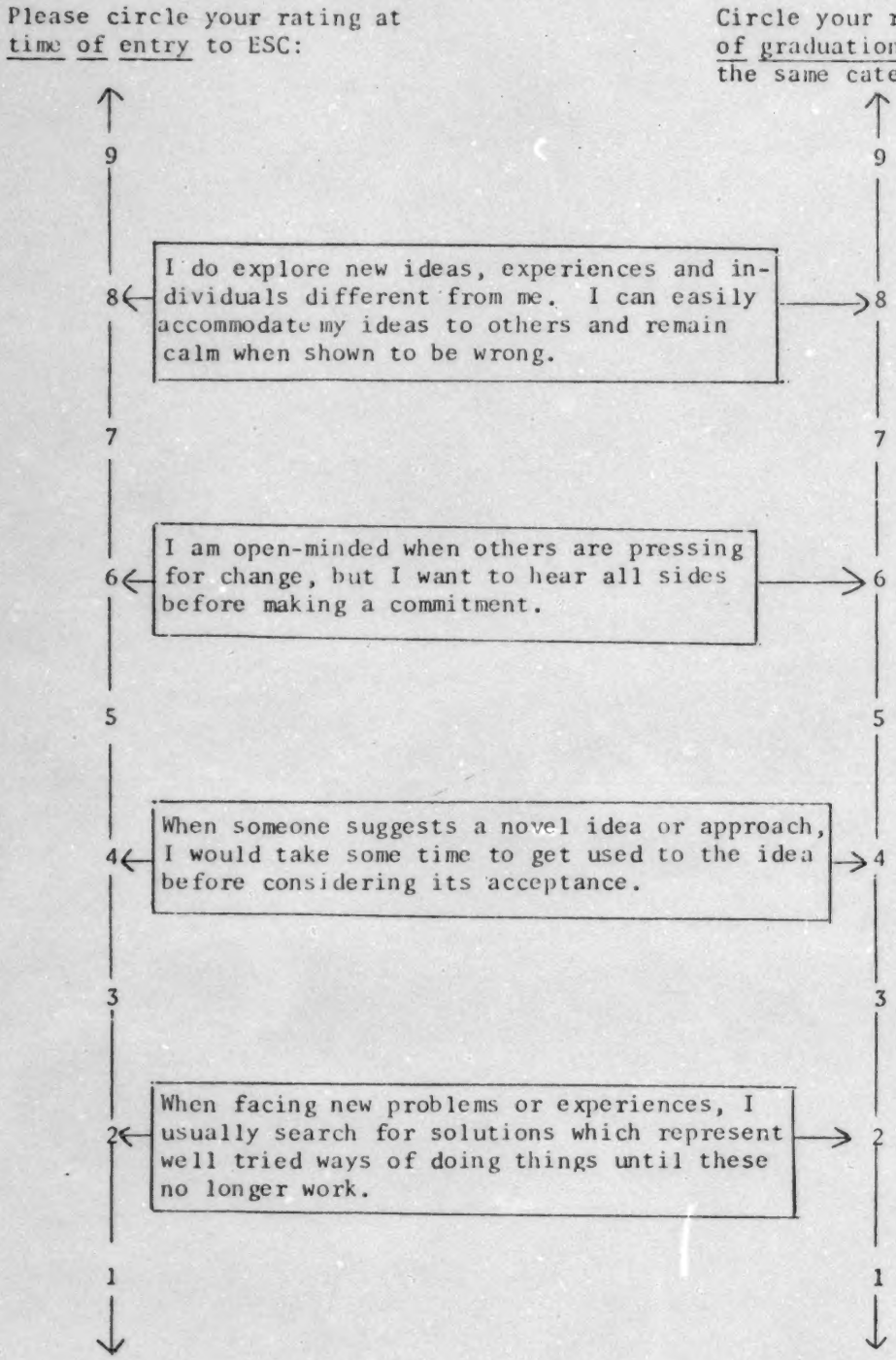
Definition: Clarifying purposes is the ability to formulate plans and set priorities that integrate a person's vocational interests, personal values and life style considerations and recreational or community activities.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
I have carefully reviewed my vocational and non-vocational interests and clarified the kind of life I want to lead. E.g. preparation of my portfolio for advanced standing helped me greatly to clarify and specify my purposes.
7
6
I am planning more specifically the kind of life I want to lead, bringing my vocational and non-vocational interests into a more coherent and satisfying relationship.
5
4
I have begun to clarify my life interests, career goals and leisure activities which are shaping my learning experiences and providing more meaning to my life.
3
2
I have not yet clarified and specified my vocational goals and personal values.
1

☐ This area of competence was not a part of my ESC work.

AWARENESS

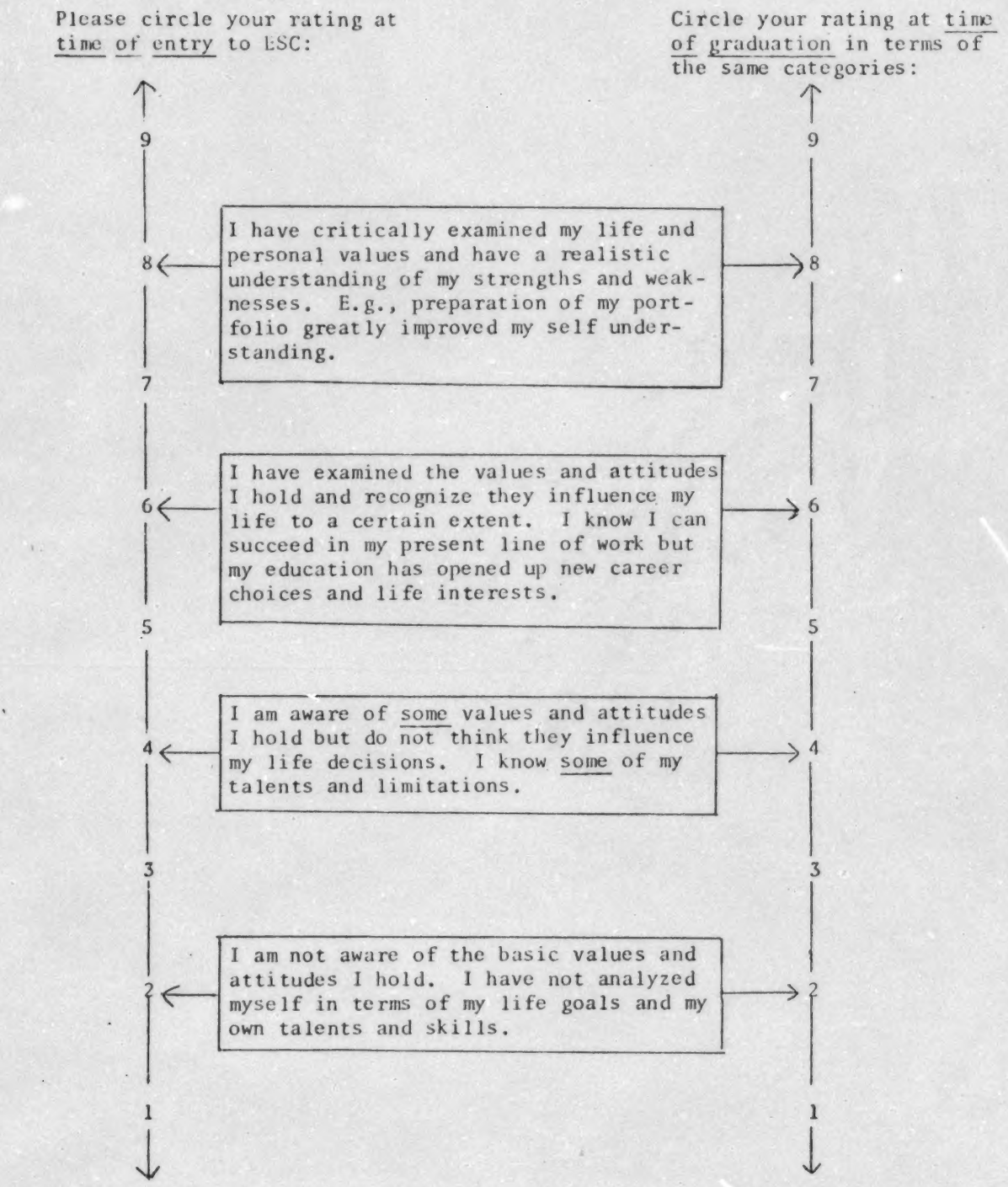
Definition: Awareness is the readiness and willingness to explore ideas, values attitudes and individuals from backgrounds quite different from your own. With increased awareness, a person has become sensitized to the diverse capabilities of man and the varied social conditions of human existence.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
I do explore new ideas, experiences and individuals different from me. I can easily accommodate my ideas to others and remain calm when shown to be wrong.
7
6
I am open-minded when others are pressing for change, but I want to hear all sides before making a commitment.
5
4
When someone suggests a novel idea or approach, I would take some time to get used to the idea before considering its acceptance.
3
2
When facing new problems or experiences, I usually search for solutions which represent well tried ways of doing things until these no longer work.
1

☐ This area of competence was not a part of my ESC work.

SELF-UNDERSTANDING

Definition: Self understanding is the capacity of the individual to examine himself, his values, attitudes and behavior in order to become more consciously aware of his potentialities and limitations.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
I have critically examined my life and personal values and have a realistic understanding of my strengths and weaknesses. E.g., preparation of my portfolio greatly improved my self understanding.
7
6
I have examined the values and attitudes I hold and recognize they influence my life to a certain extent. I know I can succeed in my present line of work but my education has opened up new career choices and life interests.
5
4
I am aware of some values and attitudes I hold but do not think they influence my life decisions. I know some of my talents and limitations.
3
2
I am not aware of the basic values and attitudes I hold. I have not analyzed myself in terms of my life goals and my own talents and skills.
1

▱ This area of competence was not a part of my ESC work.

Instructions for the Mentor, Unit Coordinator or Tutor

On the following pages, you are asked to rate a particular student who worked with you on several areas of intellectual competence and personal development. You are asked to rate the student's level of competence when he/she entered ESC and his/her level of competence at the time of graduation. It may be that a few areas were not a part of the student's learning activities at the College and the box in the lower left hand corner should be checked if this is the case.

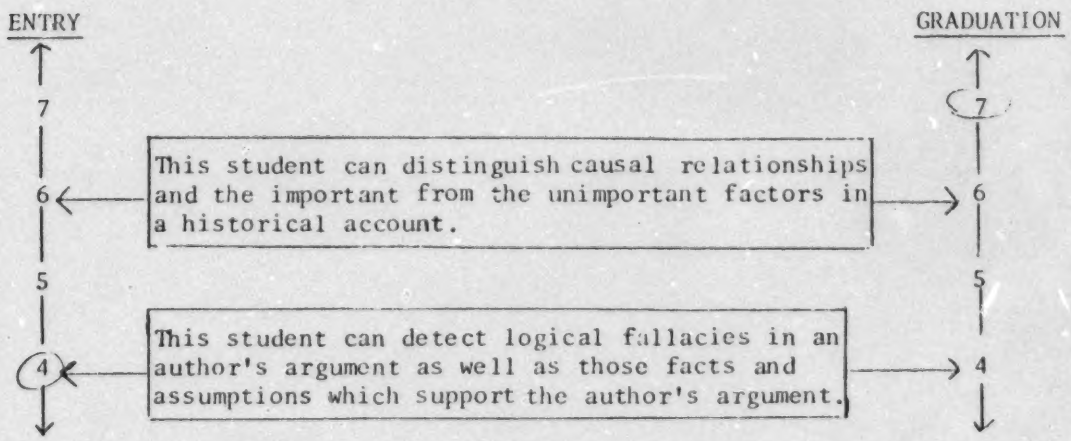
Each area is defined at the top of the page and is to be rated in terms of a nine point scale. The four boxes in the middle of the page contain specific examples to facilitate your rating. We suggest that you take time to look at each scale carefully, reading the boxes from bottom to top and back down before making a rating. The arrows from the boxes to each scale illustrate where a particular statement fits on the scale. The same boxes apply to your rating at graduation and to rating at entry. We ask you to CIRCLE the appropriate number on each scale that indicates your rating of this student at time of entry and at time of graduation.

You should be as candid and accurate in your ratings as you can be. We are not interested in having you rate this student higher (or lower) unless his/her actual learning corresponds to that rating. Attached to this package of rating forms are the digest and evaluations for the learning contracts this student had at ESC. Before beginning your ratings, please read over these digest and evaluations in order to refresh your memory. We are asking you to make a global rating for each area which includes all the work of this student as summarized on the digest and evaluations.

An Example.

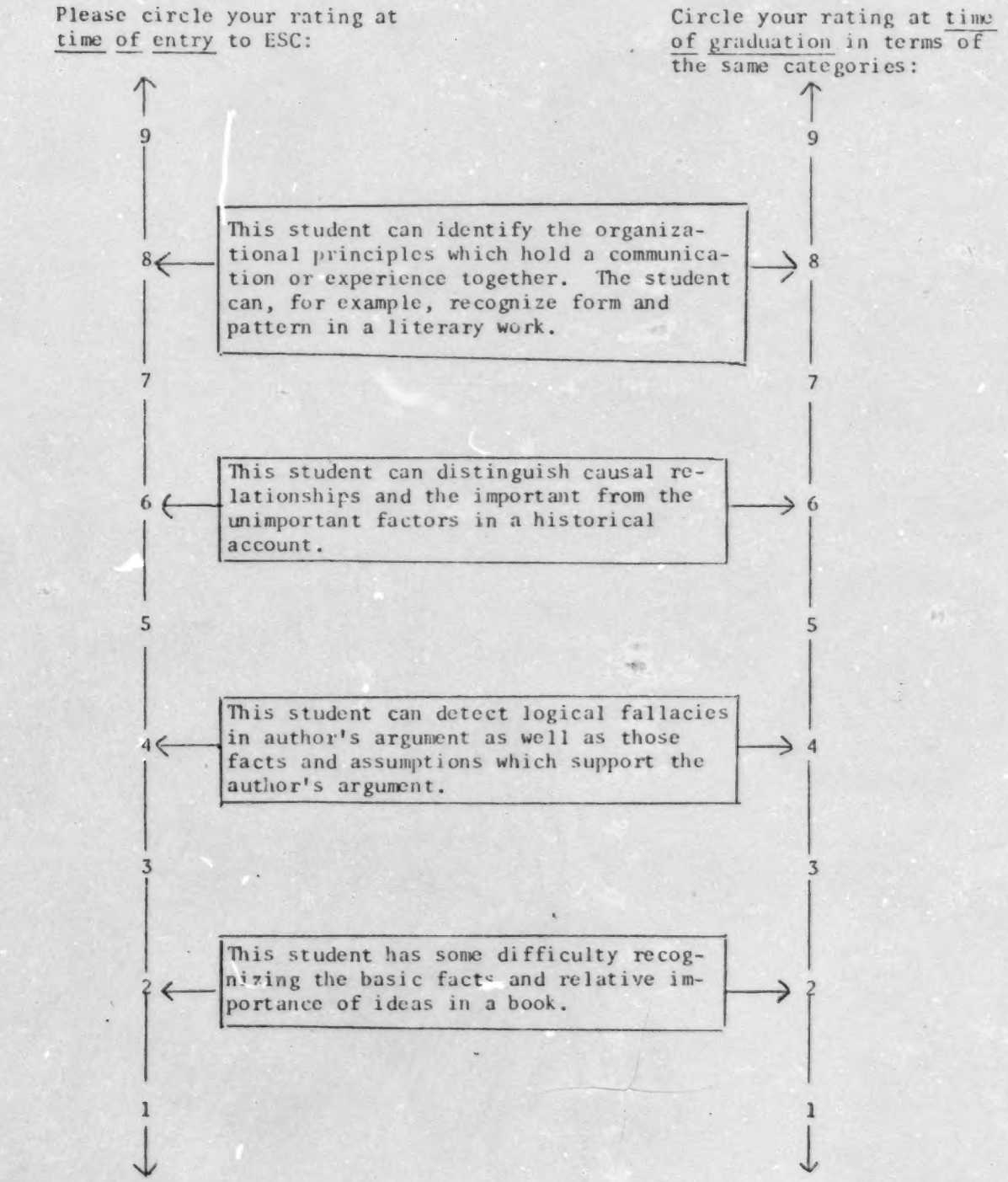
A student who entered the College with two years of previous college work already had a fair competence in analysis at entry to ESC. Thus, the mentor circled a rating of 4 on the entry scale. After completing three learning contracts with the College where several papers were written, a field project was undertaken and the student's own research study was conducted, the student had gained considerable experience in analysis activities. Therefore, the mentor rated that student's level of analytical skills at time of graduation at 7.

ANALYSIS


ENTRY
GRADUATION
7
6
5
4
7
6
5
4
This student can distinguish causal relationships and the important from the unimportant factors in a historical account.
This student can detect logical fallacies in an author's argument as well as those facts and assumptions which support the author's argument.

ANALYSIS

Definition: Analysis is the ability to break down a communication or experience into its basic elements to identify the relative importance of ideas and to make explicit the relationships among them.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
This student can identify the organizational principles which hold a communication or experience together. The student can, for example, recognize form and pattern in a literary work.
7
6
This student can distinguish causal relationships and the important from the unimportant factors in a historical account.
5
4
This student can detect logical fallacies in author's argument as well as those facts and assumptions which support the author's argument.
3
2
This student has some difficulty recognizing the basic facts and relative importance of ideas in a book.
1

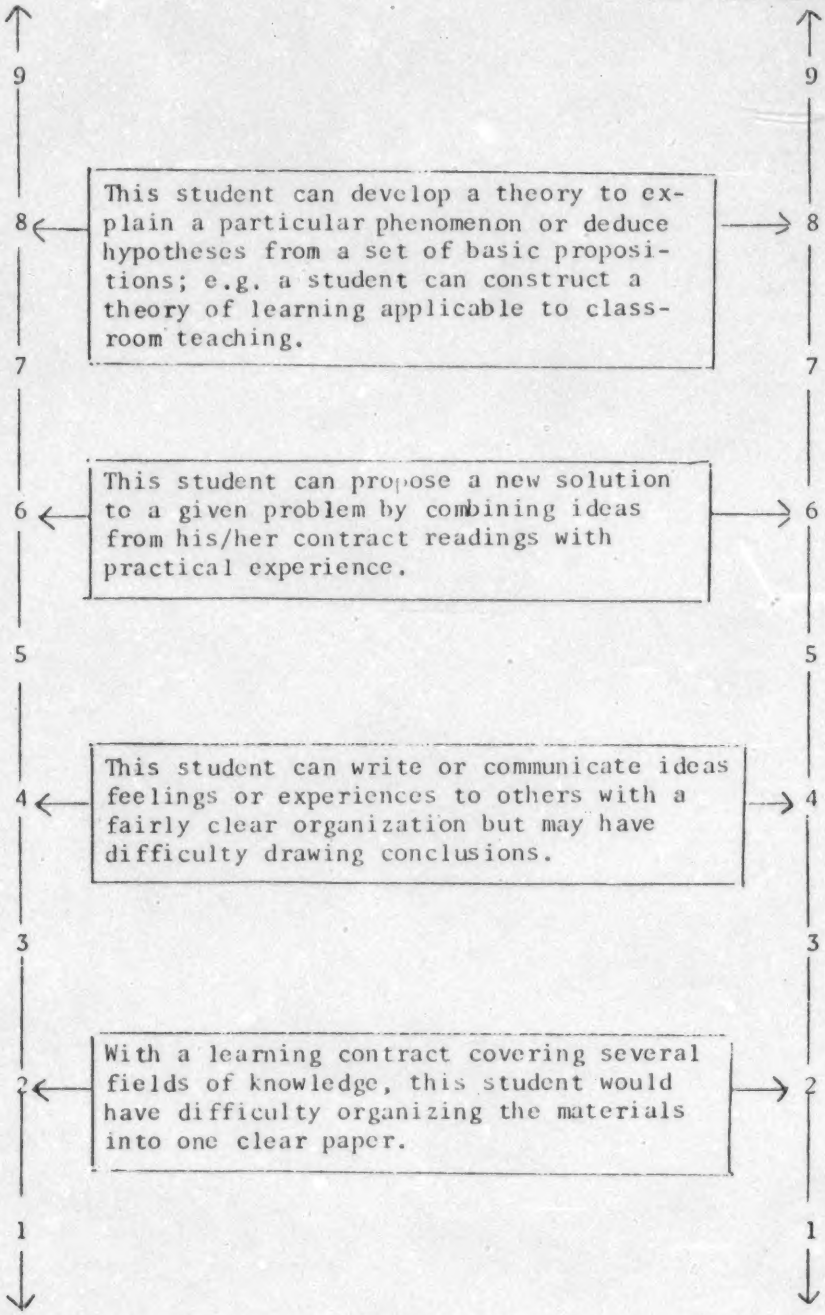
▱ This area of competence was not a part of this student's ESC work.

SYNTHESIS

Definition: Synthesis involves arranging and combining elements so that a new structure or pattern emerges. The ability to synthesize demonstrates the intellectual competence to form a new hypothesis, organize a new experiment or propose a solution to a given problem.

Please circle your rating at time of entry to ESC:

Circle your rating at time of graduation in terms of the same categories:


9
8
This student can develop a theory to explain a particular phenomenon or deduce hypotheses from a set of basic propositions; e.g. a student can construct a theory of learning applicable to classroom teaching.
7
6
This student can propose a new solution to a given problem by combining ideas from his/her contract readings with practical experience.
5
4
This student can write or communicate ideas feelings or experiences to others with a fairly clear organization but may have difficulty drawing conclusions.
3
2
With a learning contract covering several fields of knowledge, this student would have difficulty organizing the materials into one clear paper.
1

▱ This area of competence was not a part of this student's ESC work.

APPLICATION

Definition: Application is the ability to use theories and concepts in concrete situations and practical activities. Application also implies the ability to compare one set of ideas and experiences to another in order to consider their implications and potential consequences. Application uses relevant knowledge to identify problems and to propose and implement solutions.

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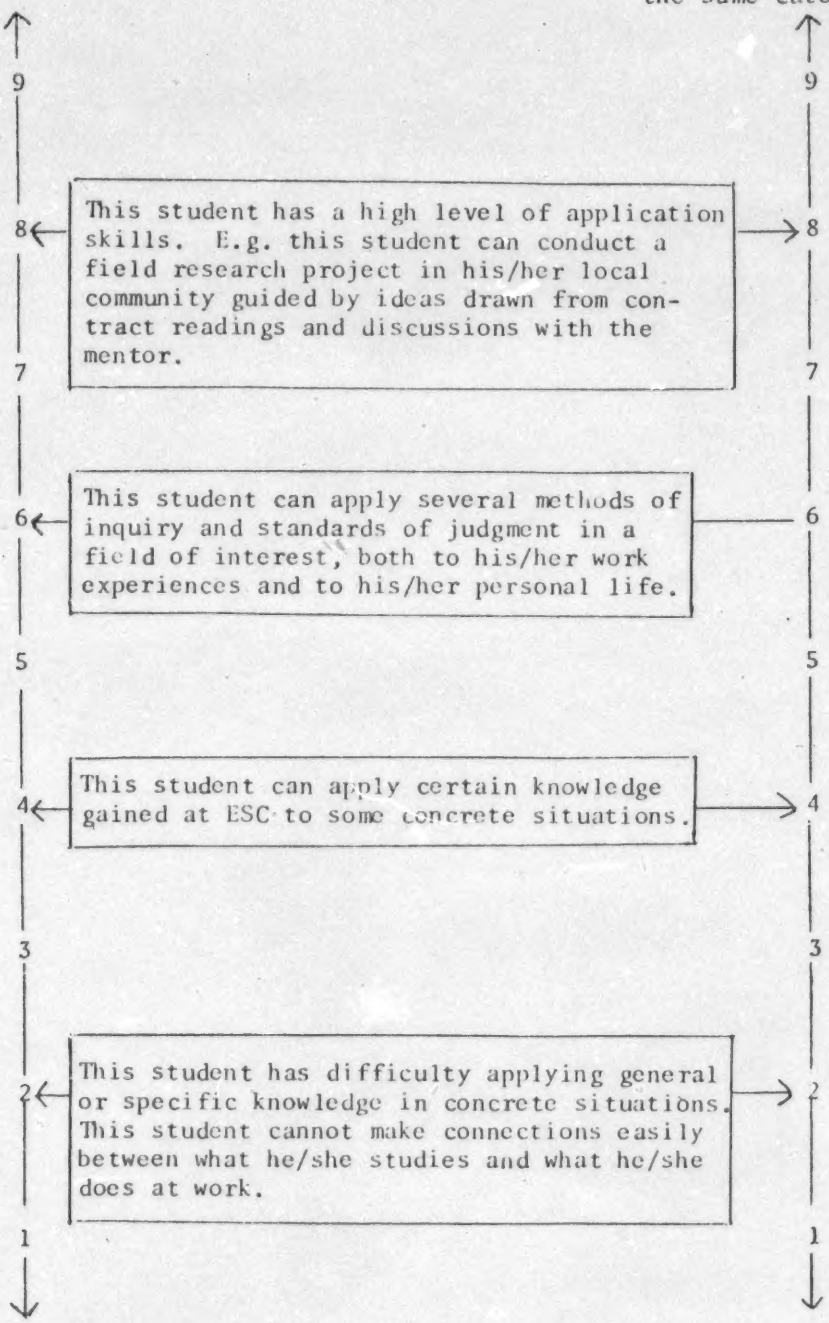
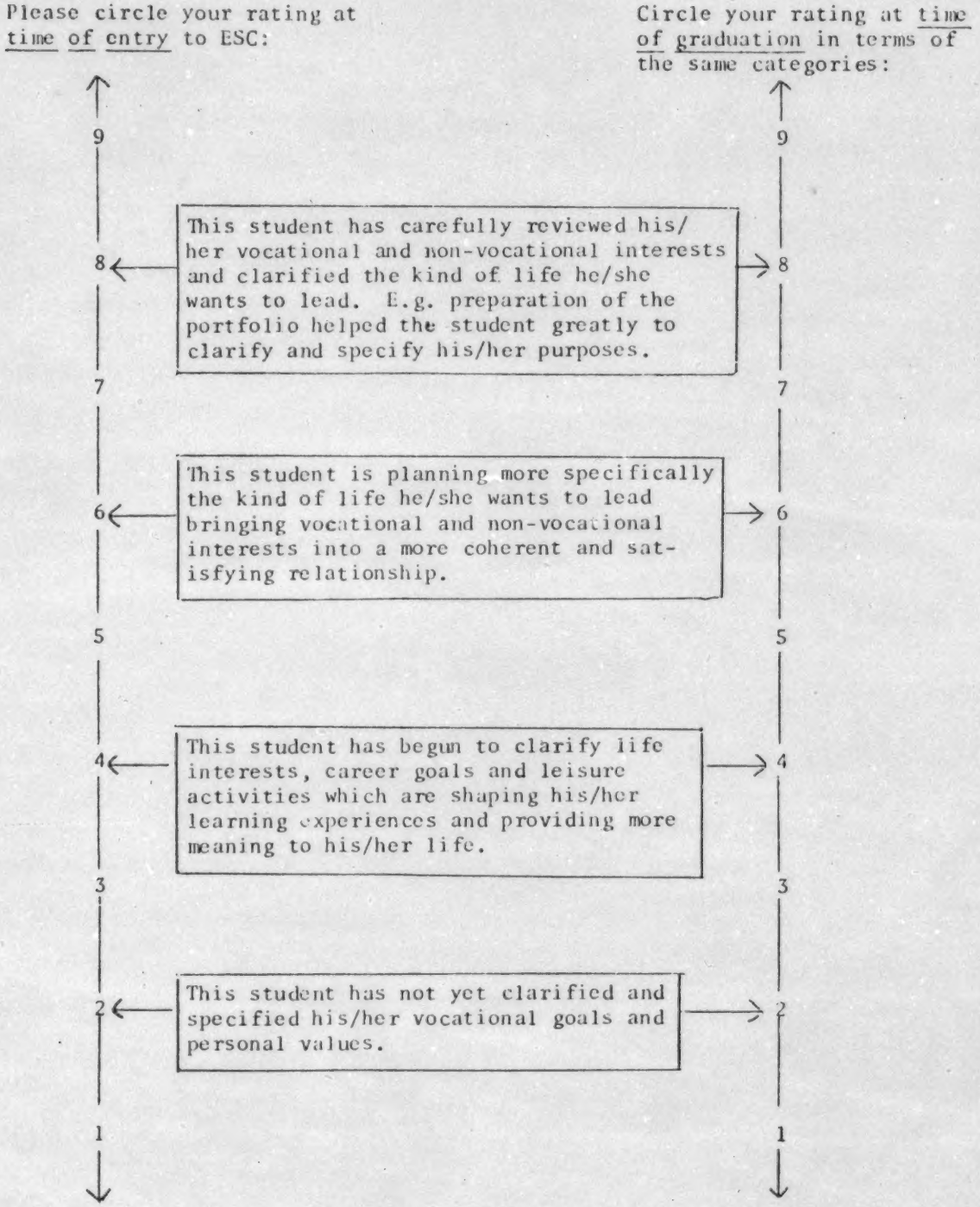

9
8
This student has a high level of application skills. E.g. this student can conduct a field research project in his/her local community guided by ideas drawn from contract readings and discussions with the mentor.
7
6
This student can apply several methods of inquiry and standards of judgment in a field of interest, both to his/her work experiences and to his/her personal life.
5
4
This student can apply certain knowledge gained at ESC to some concrete situations.
3
2
This student has difficulty applying general or specific knowledge in concrete situations. This student cannot make connections easily between what he/she studies and what he/she does at work.
1

☐ This area of competence was not a part of this student's ESC work.

CLARIFYING PURPOSES

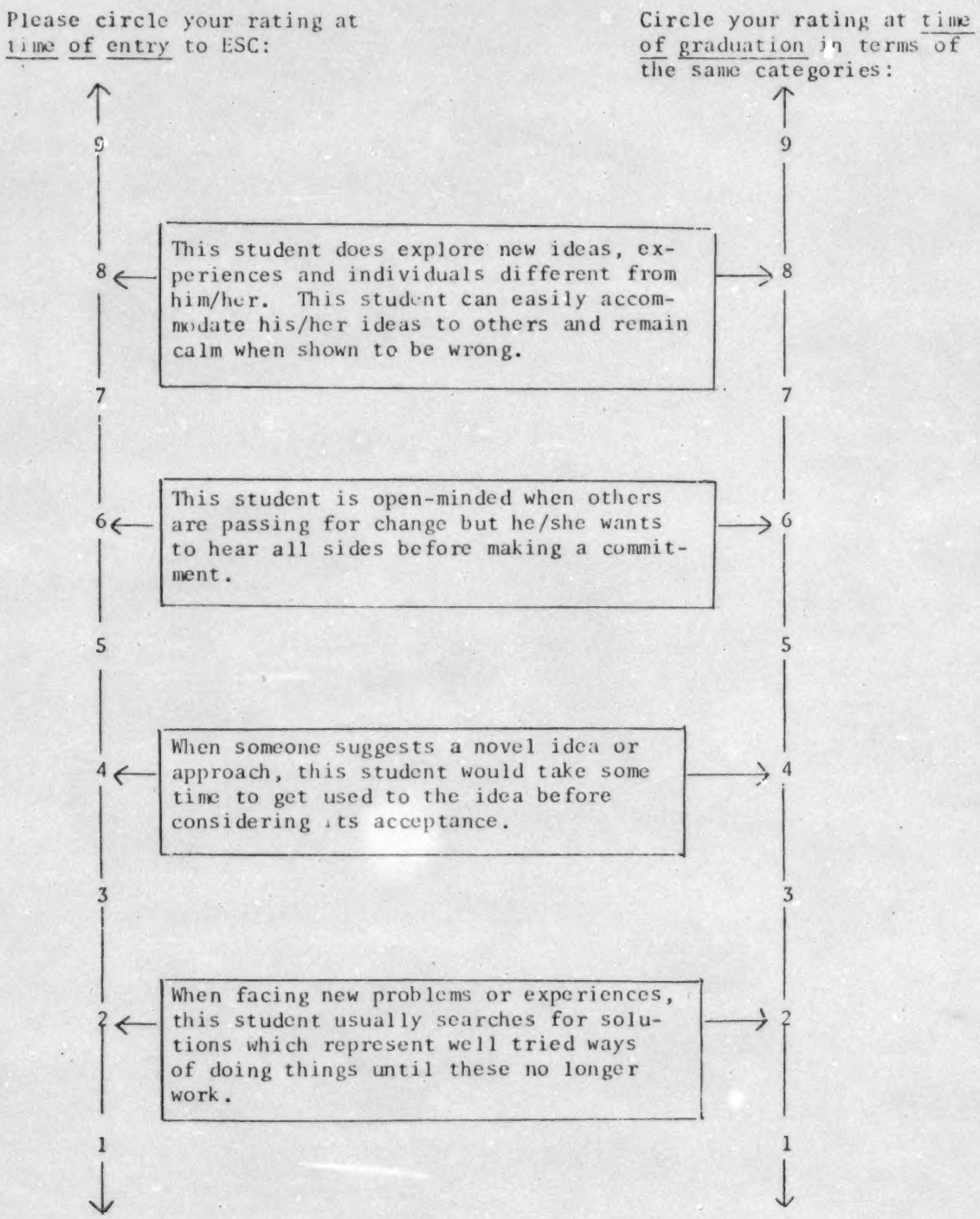
Definition: Clarifying purposes is the ability to formulate plans and set priorites that integrate a person's vocational interests, personal values and life style considerations and recreational or community activities.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
7
6
5
4
3
2
1
This student has carefully reviewed his/her vocational and non-vocational interests and clarified the kind of life he/she wants to lead. E.g. preparation of the portfolio helped the student greatly to clarify and specify his/her purposes.
This student is planning more specifically the kind of life he/she wants to lead bringing vocational and non-vocational interests into a more coherent and satisfying relationship.
This student has begun to clarify life interests, career goals and leisure activities which are shaping his/her learning experiences and providing more meaning to his/her life.
This student has not yet clarified and specified his/her vocational goals and personal values.

☐ This area of competence was not a part of this student's ESC work.

AWARENESS

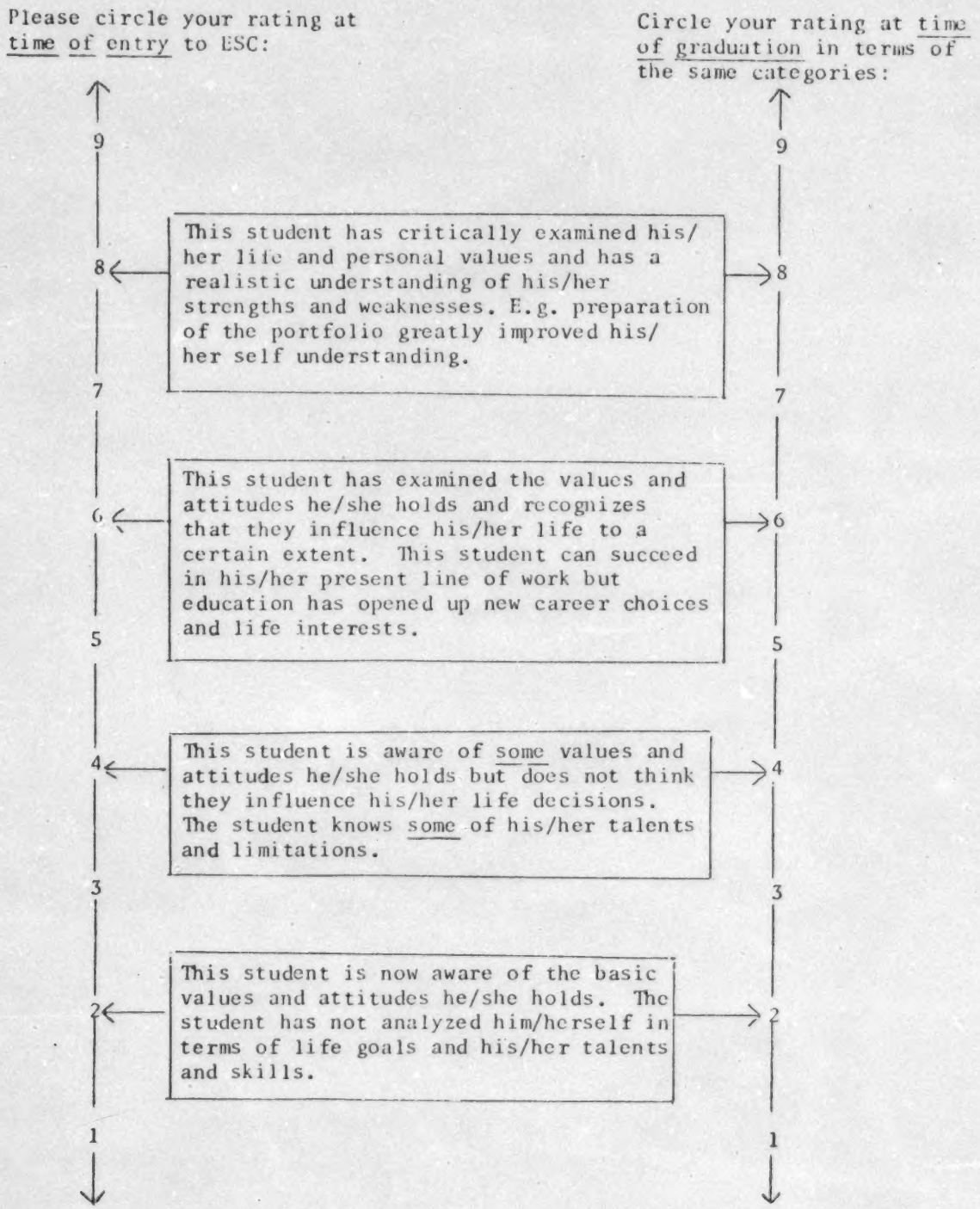
Definition: Awareness is the readiness and willingness to explore ideas, values attitudes and individuals from backgrounds quite different from the student's own. With increased awareness, a person has become sensitized to the diverse capabilities of man and the varied social conditions of human existence.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
7
6
5
4
3
2
1
This student does explore new ideas, experiences and individuals different from him/her. This student can easily accommodate his/her ideas to others and remain calm when shown to be wrong.
This student is open-minded when others are passing for change but he/she wants to hear all sides before making a commitment.
When someone suggests a novel idea or approach, this student would take some time to get used to the idea before considering its acceptance.
When facing new problems or experiences, this student usually searches for solutions which represent well tried ways of doing things until these no longer work.

☐ This area of competence was not a part of this student's ESC work.

SELF-UNDERSTANDING

Definition: Self-understanding is the capacity of the individual to examine himself, his values attitudes and behavior in order to become more consciously aware of his potentialities and limitations.


Please circle your rating at time of entry to ESC:
Circle your rating at time of graduation in terms of the same categories:
9
8
7
6
5
4
3
2
1
This student has critically examined his/her life and personal values and has a realistic understanding of his/her strengths and weaknesses. E.g. preparation of the portfolio greatly improved his/her self understanding.
This student has examined the values and attitudes he/she holds and recognizes that they influence his/her life to a certain extent. This student can succeed in his/her present line of work but education has opened up new career choices and life interests.
This student is aware of some values and attitudes he/she holds but does not think they influence his/her life decisions. The student knows some of his/her talents and limitations.
This student is now aware of the basic values and attitudes he/she holds. The student has not analyzed him/herself in terms of life goals and his/her talents and skills.

▱ This area of competence was not a part of this student's ESC work.